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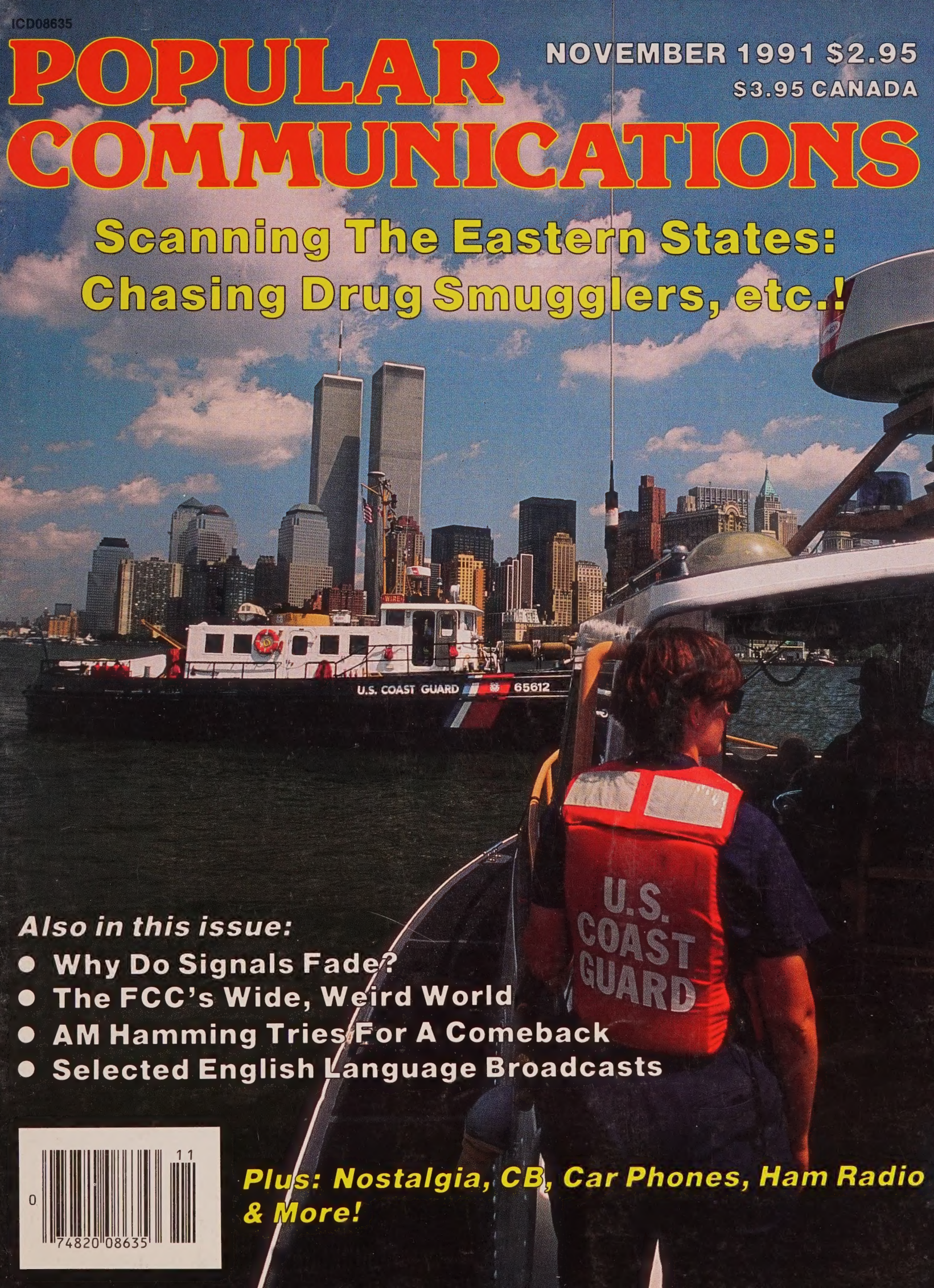

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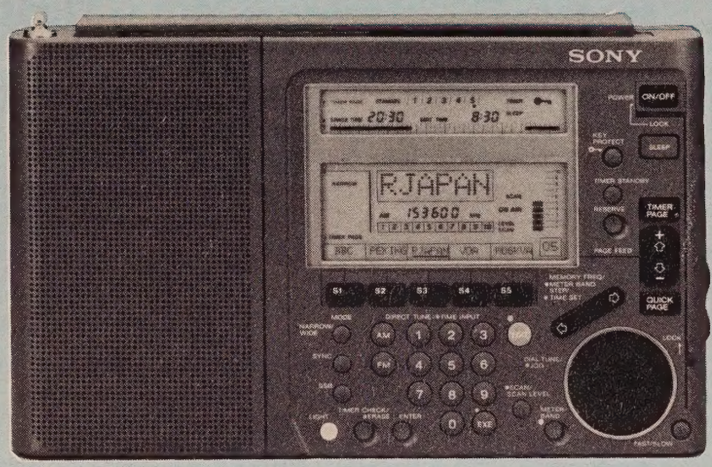

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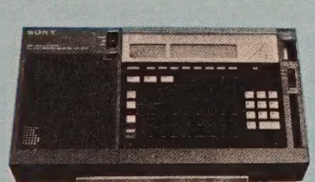

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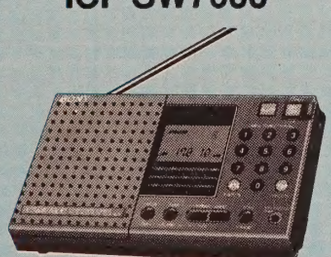

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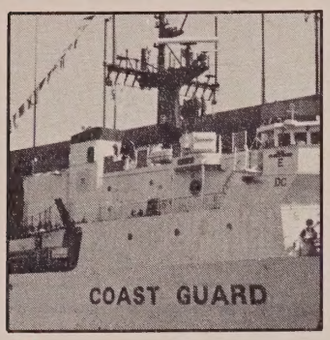

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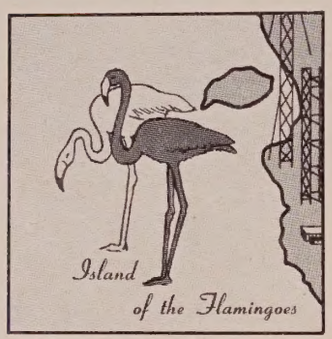

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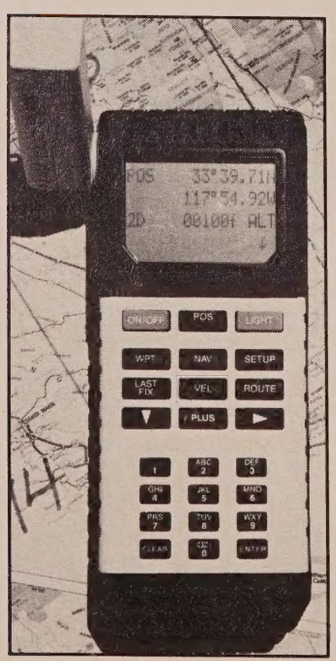

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This month's cover: *U.S. Coast Guard vessel on station in New York Harbor. Photo by Larry Mulvehill.*

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Jeanine M. O'Connor, Associate Editor

CONTRIBUTING EDITORS
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Robert Margolis, RTTY Monitoring
Gordon West, WB6NOA, Emergency
Don Schimmel, Utility Communications
Edward Teach, Alternative Radio
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A publication of

CQ Communications, Inc.
76 North Broadway
Hicksville, NY 11801-2953 USA.

Offices: 76 North Broadway, Hicksville, NY 11801. Telephone 516 681-2922. FAX (516) 681-2926. Popular Communications (ISSN 0733-3315) is published monthly by CQ Communications, Inc. Second class postage paid at Hicksville, NY and additional offices. Subscription prices: Domestic—one year $19.95, two years $38.00, three years $57.00. Canada/Mexico—one year $22.00, two years $42.00, three years $63.00. Foreign—one year $24.00, two years $46.00, three years $69.00. Foreign Air Mail—one year $77.00, two years $152.00, three years $228.00.

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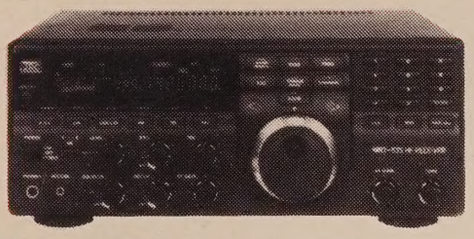

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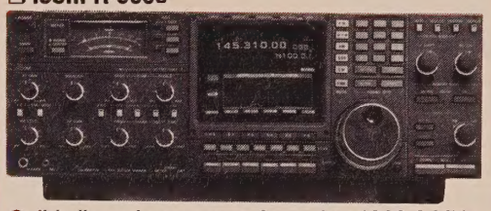

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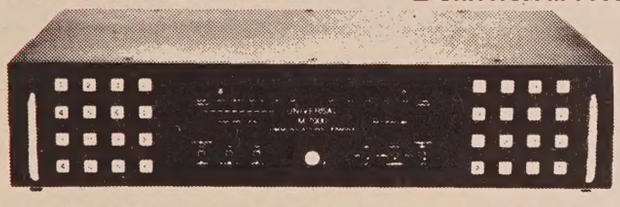

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BEAMING IN

BY TOM KNEITEL, K2AES

AN EDITORIAL

Wide Weird World of Radio

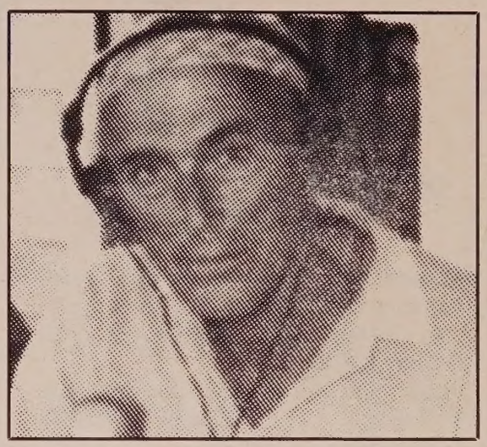
When you stop to think about it, there's never really been any clear cut way of guessing the rationale by which Americans have the right to use the public airwaves, and how they may be so used. At least, not beyond saying that the FCC is the government agency that at present establishes the rules for such things as they relate to individuals and corporations in the USA. But how the FCC makes such determinations has neither been consistent, nor been especially clear to many people.

Tell It To The World

For instance, it's been noted that a person must jump through an almost endless series of FCC hoops in order to get a broadcast license. Besides having to scrape up a bare minimum of $50,000 just to get started, there are endless engineering and other surveys to prepare, plus stacks of paperwork to file. Then, the government still reserves the right to send the applicant and his paperwork packing if they don't think he possesses the high moral qualities they have decided are necessary to be a broadcast licensee. There is some kind of wonderful irony here. I'll forgo the temptation to comment further.

But, let's say that a person can successfully clear all of the financial, technical, moral and other hurdles, and they are rewarded with a coveted broadcasting license. Once their station goes on the air, they are welcome to invite to their microphones all of the people who would have never been able to get their own licenses because of their alleged sleazy moral makeup. Obviously, the public wants to hear from and about tacky people. They are the very ones broadcasters seek out as interesting guests on all of the highest rated radio and TV talk shows. Makes you think that it was rather a hollow gesture for the government to attempt to keep them off the air.

But, after all, don't Americans have the protection of the First Amendment to the Constitution, which guarantees free speech? Sort of. Within the scope of the FCC's unclear interpretation of what they feel is suitable for audiences to hear, the use of certain words could get a broadcaster in big trouble. That is to say, the First Amendment is interpreted by the government as being applied differently to broadcasters and to average citizens. The average citizen is free to say those same things in person, and also does so with impunity over cellulars, even though car phones are licensed by the very same agency. Amusing, but confusing.



Tom Reveille of Radio Free Venice said his station's signals don't cross state lines and are therefore exempt from FCC jurisdiction.

When Pirates Ride The Waves

There have been those who question the FCC's right to issue broadcasting licenses, or who are willing to grant the agency that right but see no possible way of ever securing such a license for themselves because of the complex regulations and great expense involved.

The ultimate challenge to the authority of the FCC is when someone simply bypasses the agency and puts a broadcasting station on the air without a license. Regardless of which side of the fence from which this act is viewed, it can hardly be ignored. To say the very least, the FCC takes an extremely dim view of such an event, seeing it as a potential prelude to something unthinkable—possible loss of the agency's ability to control the service just in case one successful unlicensed broadcast station inspires a sufficient number of additional pirates to commence operation. The FCC has therefore been known to go to almost unbelievable lengths to close down some unlicensed broadcasters.

Unlicensed broadcasters traditionally challenge the FCC's licensing jurisdiction by complaining that it's an infringement of their First Amendment right of free speech. Unfortunately, as logical as the First Amendment justification for unlicensed broadcasting seems it should be, it has nevertheless not fared well as a defense for anybody yet brought up on pirate broadcasting charges. Still, folks keep trying it in the futile hope that they'll be the first to succeed.

For people who put a lot of thought into establishing an unlicensed broadcasting station, you'd certainly have to wonder why they couldn't also dream up a wide assortment of imaginative defenses to put into use. Let's face it, Neanderthals commit outrageous and violent felonies and avoid conviction by claiming "temporary insanity" as their only defense. A victimless "crime" such as operating a radio transmitter without a license should lend itself to at least more creativity than continual useless whining about the First Amendment to an agency that obviously doesn't buy that argument.

Several months ago, a gentleman from Ohio called to say that he was the pastor of an "unorganized church." He was planning to put a low power FM station on the air in order to preach his religious beliefs. He told me that he didn't need a license for this station because of "separation of church and state." For this same reason, his church was not registered with any level of governmental agencies. Neither did he believe that a federal agency had authority above the Bible, from which he cited chapter and verse as having commanded the faithful to preach, but did not specify that any type of license was needed.

I told him I hadn't heard that one before as an excuse to broadcast without an FCC license. Still, I somehow thought the agency would be unimpressed, and would grab him by the gospels and quickly attempt to remove him from the airwaves. He said he feared no serpents. I wished him luck, but haven't heard anything more from or about him since. Perhaps an odd approach, but at least something different than the First Amendment.

More recently, there has been Tom Reveille, operator of unlicensed non-commercial FM broadcaster *Radio Free Venice*, a California station on 107.9 MHz. He is also taking a different tack.

Yes, Reveille feels that when the FCC hassled his RFV operations it was an infringement of his First Amendment rights, but also other basic Constitutional guarantees. He decided to defend his activities by taking a stand on the rights assured under the Ninth Amendment of the Constitution. Beethoven's Ninth may be more familar to you than the Constitution's Ninth.

Called by some the "dead amendment," because it is little known to the general public and seldom used, the Ninth Amendment stipulates that all rights not delegated to the state or federal government are reserved for the individual.

(Continued on page 6)

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CIRCLE 50 ON READER SERVICE CARD

Beaming In

(from page 4)

Reveille says that his station's 20-watt signal, at best, reaches out only two miles. When the FCC came down on RFV for unlicensed operation, the agency alleged a violation of Section 301 of the Communications Act of 1934. Yet, Reveille points out that the Communications Act of 1934 was created to control "all the channels of interstate and foreign radio transmission." Reveille contends that Venice is so far from the nearest state border (more than 120 miles), that its signals don't extend outside of California. And since RFV has no commercials, Reveille feels there can be no question of RFV transmitting interstate nor being engaged in interstate commerce. Therefore, RFV's operation is, in his opinion, not a federal matter.

J. R. Zoulek, the FCC official who hassled RFV, was questioned on this point. Supposedly, he told a California reporter about radio waves never dying, and that although they become too attenuated to get picked up, they do cross state lines at some point, and still exist. That's why people need FCC licenses to broadcast. That's the FCC man's explanation we saw in a press report of the incident. Trust me, I don't make up this stuff.

When last heard about, RFV had received a $1,000 notice of apparent liability from the FCC for unlicensed broadcasting. Reveille was vowing to see the FCC in court, and was hoping to keep his station on the air with the determination of someone who believes that the government has no jurisdiction in intrastate matters. He announced he was planning on installing a new antenna to extend RFV's range to eight miles.

Reveille said that he found the FCC argument ludicrous. "If sound never dies . . . there's no free speech," he observed.

We'll wait and see if this approach works. Of course, everything old becomes new again. When I checked our archives, I found that in 1933, unlicensed broadcaster DNTX (980 kHz) in the Southern Hotel of Denton, Texas attempted operate minus a broadcasting license by running its 50-watt transmitter at only 5-watts and operating exclusively during daylight hours. That way, R.E. Turner, DNTX's operator, said, the signals didn't cross any state lines so his station was therefore exempt from federal licensing and other broadcast regulations. The government took DNTX to court. Turner's logical-sounding theory didn't hold up. In that instance, a federal court ruled that the DNTX radio signals came under federal jurisdiction and regulation even if they could not be proven to have crossed state lines. Apparently a few other pirates have also tried this same approach to no avail.

A familiar FCC admonition against radio piracy is that these people should get licenses. Yet, once a person goes into the FCC's records as having been a pirate, it appears that they may be forever stigmatized in the eyes of the agency. Several have later attempted to get broadcast licenses, very few ever succeeded.

The difficulty in getting any insight into the agency's attitudes and logic is only further thwarted if you look at other services that it administers.

The Band That Got Away

The CB radio service at one time required individual station licenses. There were lengthy rules forbidding hobby type communications, along with numerous other taboos. Nevertheless, right from the beginning, CB proved that it was going to exist only as a hobby service, despite strident FCC attempts to strengthen, clarify, explain, and enforce its anti-hobby, anti-skip CB regulations.

As CB entered the boom years of the late 1970's, few operators were paying any attention to the FCC's CB regulations. It was an enormously popular and rapidly expanding hobby radio service. Stations were working skip at every opportunity. Even though there were far too many rule violators for any effective FCC enforcement efforts, CB'ers became afraid to use their callsigns. Some were refusing to get a license for fear of letting the FCC know who and where they were. Those who did take out CB licenses sometimes found that the beleaguered FCC license computer responded by cranking out hundreds of thousands of duplicate CB callsigns. Then, at some point, the unthinkable actually happened. The FCC caved in under the pressure of too many CB rules, too many CB stations, too many CB rulebreakers.

The agency had totally lost control of CB. That's when, for all practical purposes, the FCC pretty much walked away from CB. Finally accepting the reality that the rules were all but completely ignored, they removed the ineffective restrictions against hobby communications, stopped even the pretext of enforcing the regulations against working skip, and no longer required stations to use callsigns or even have licenses. This must have been some sort of FCC nightmare "Plan B, Worst Case Scenario," but it only reflected what CB had already been for many years, anyway.

These days, so long as CB operators stick to the authorized 40 channels, the equipment used is legal with respect to power output, and stations don't generate interference complaints from the public, the FCC doesn't seem to get very concerned about what goes on there. No big deal. One can only wonder why the agency just didn't go that same route more than a dozen years earlier when it became obvious that this is what the public was demanding. Had the inscrutable FCC been less interested in pressing to win some pointless battle of wills, and more interested in accommodating the public, the agency might have maintained control of CB radio. It's a mystery why the agency stubbornly waited until many years after anybody cared. Truly, an unfortunate chapter in FCC history.

From Raw Ham You Could Get Trichinosis

What's been tantalizing to me is that in recent months I have received a smattering of mail asking questions that only a few years back would have made strong men fighting angry and weak men panicky. For instance, now that the FCC has finally agreed to a "no code" ham ticket, how long did anybody really think it would take before some people got around to the next step, asking when the FCC will establish what amounts almost to a "no exam" (or "know nothing") ham ticket?

My first reaction was laugh this off and reply that a lot of people already have come to mistakenly consider CB radio as a low-power pseudo no-exam ham radio service. Some of those who wrote in, though, brought up some points that led me to think that maybe these people might not be willing to be shrugged off quite so quickly with a wisecrack.

It was pointed out to me that back in the early days of motor vehicles and wireless, operators had to demonstrate a certain mechanical and technical understanding in order to prove that they could get the temperamental machines and wireless apparatus operating efficiently and safely. Moreover, they understood how the equipment worked, and could fix everything because repairs were needed so frequently and weren't easily obtainable.

As automobiles became more common and complex, and service stations began springing up across the nation, drivers were no longer required to prove a knowledge of automotive mechanics. There was little reason to think that drivers would need to fix their own vehicles unless they wanted to do so. At that point, drivers were required only to show that they knew how to safely and courteously operate the vehicle and that they understood the traffic laws.

If one can grasp a parallel with the development of communications, it might be argued that in the era some operators consider the "classic period" of radio, a great many hams scratch built their own high powered AM and CW equipment from vacuum tubes and hand-wound coils. Even commercially produced ham gear could be easily serviced by the average licensee.

Today, given the construction complexity and sophistication of modern SSB, RTTY, and multi-mode transceivers, some people now question the importance for the operators of such devices to understand their circuitry. They ask if is likely that the average ham of the 1990's will scratch build or need or wish to attempt to service this equipment. Moreover, they question if one needs to memorize or even understand tech theory, circuits, formulas, and data when such information can be instantly and easily

(Continued on page 76)

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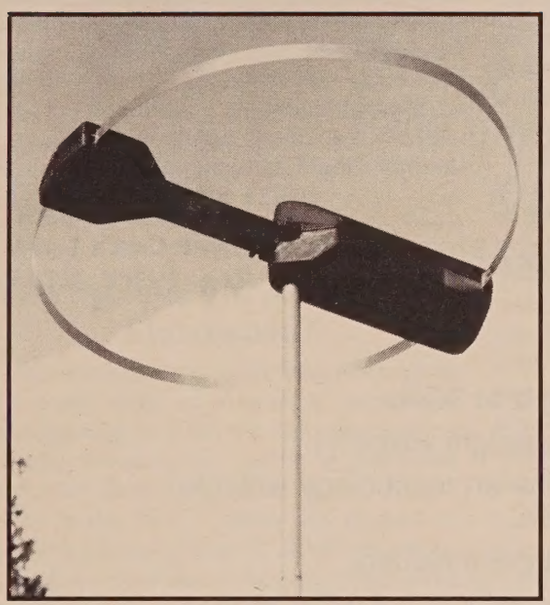

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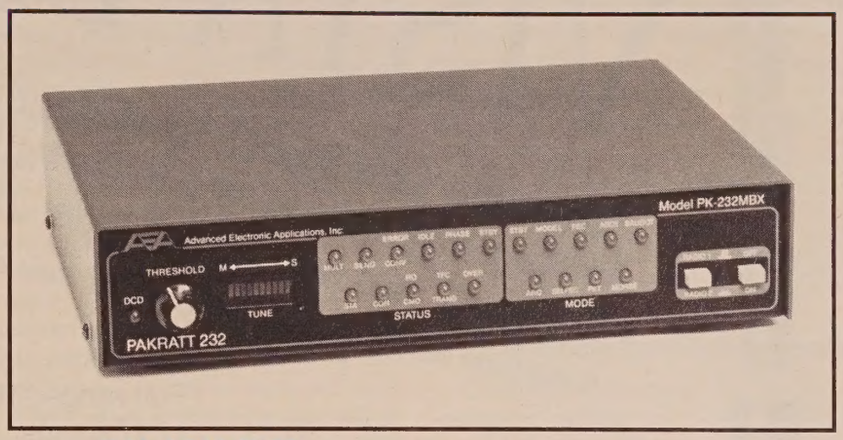

The PK-232MBX is a must for the digital Shortwave Listener. By far the most popular multi-mode controller ever, it can receive seven different types of data signals including Morse code, Baudot, ASCII, TDM (Time Division Multiplex), WEFAX, NAVTEX and Packet. It also features: The indispensible SIAM which automatically identifies many types of digital signals; superior software support for PC compatible, Macintosh and Commodore 64 and 128 computers.

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MAILBAG

LETTERS TO THE EDITOR

Each month we select representative reader letters for our Mailbag column. We reserve the right to condense lengthy letters for space reasons. All letters submitted for consideration must be signed and show a return address. Upon request, we will withhold sender's name should the letter be used in Mailbag. Address letters to Tom Kneitel, Editor, Popular Communications Magazine, 76 North Broadway, Hicksville, NY 11801.

Who Speaks For America on Shortwave?

This is in response to the May editorial on the sorry state of American shortwave broadcasting. In 1988-89, being ignorant of the requirements for putting a shortwave broadcast station on the air in the USA, I wrote to the FCC. I stated my interest in opening a small station (1 kW) in order to spread the word about the area where I live in northern Wisconsin, with its hunting fishing, water sports, etc. There was no reply at all. I wrote a second time. Still no reply.

My wife and I used to listen to and enjoy shortwave station KUSW, and rarely missed a day from the fall of 1988 until it left the air on December 15th, 1990. We were Charter Members of KUSW, and when it was sold we felt we lost a friend. When KUSW went, it left a vacuum. We were very disappointed to see this station sold to a religious broadcast service. Long live KUSW, if only in the memories of those who were devoted listeners to this station.

Keith Posto,
Conover, WI

Where Have All The Newcomers Gone?

The April *Beaming In* complained about too few newcomers in the radio communications hobbies. I took out a ham license in 1970 and even though it has now expired, I am still an active SWL and scanner user. I feel there are several reasons why the radio hobbies aren't attracting young people in the large numbers that might be expected. For instance, PC's have attracted tech-minded youth because they can self-actualize by writing software, even though the barriers to self-actualization in hardware are high. Ham radio construction projects these days are limited to low-tech items like simple accessories and antennas. Also, our world has become smaller and the mystique of DX is just about gone. Long distance calls are cheap, and you can see the exotic places of the world in color on your TV set. Ham radio is still analog, but consumer electronics (everything from VCR's to CD's and cellulars) are starting to go digital. Those who want mobile two-way comms tend to look to cellulars. The no-code ham ticket is a quick-fix, and not a long-term solution. Justifying to the public the use of valuable spectrum by hams on the grounds of future technological advancements is false.

Yes, hams do provide a service of genuine value to the public during emergencies or disasters. The question will be debated as to how much spectrum is needed for occasional times and scattered locales. As digital technologies, encryption, satellites, and spectrum-hungry developments play an ever increasing part in broadcasting and communications, one must now seriously consider how changes that lie ahead will affect hams, scanner users, and SWL's within the next eight or nine years.

Chuck Till,
Raleigh, NC

Is Harry Frank?

In the July issue, Harry Helms' *You Should Know* column was his best. Beginners (and I am one) needed someone to speak to us frankly and honestly. I appreciated his tips on how to quickly fit into the hobby without looking like a greenhorn, and without asking a lot of very basic questions that I could (and should) have been able to find out by my own efforts. Helms' thoughts were very helpful.

Barbara Leighton,
Chicago, IL

I found Harry Helms' July column very degrading, especially to the new hobbyist. When one writes in for advice, he or she should not receive such sassy answers but should get helpful ones. With writers such as he, why would anybody want to start SWL'ing?

Scott P. Dowling,
Beaufort, SC

Helms enjoys sipping sassyparilla soda and sassyfrass tea. That would certainly account for sassy answers. We have now presented Harry with a jar of soft, sugar-coated mush for breakfast on days when he's responding to especially sensitive readers.
—Editor.

Bring a Friend!

Just a short note to let you know that your April *POP'COMM* editorial *Beaming In* brought in at least one new Amateur Radio Operator, myself. I have been a scanner enthusiast and SWL for 16 years and have always wanted to possess a ham ticket. Your editorial on the dwindling numbers entering the hobby gave me the inspiration (read that "final kick") to do something. Now that I have my license, two of my bosses, plus two of my friends, are studying for their ham tickets. One is taking the exam this week. I hope that they, in turn, will also be bringing others into this hobby. Keep up your work!

Kieran J. O'Hagan, N2MWE,
Bronx, NY

Wants To Contribute

Enclosed herewith is an idea for a new monthly column in *POP'COMM* that I would like to propose, with myself as columnist. Your magazine doesn't run a column on this subject. I have also provided a summary of my interest and experience in my proposed topic. I have contributed to club and local hobby newsletters on various subjects, now I think I'm seasoned and ready for the big time. I'd consider it an honor to join your staff of columnists.

Michael Anderson,
Washington State

This suggestion is appreciated and will be given serious consideration. We encourage similar suggestions from other readers who have an expertise in a specific area of interest to communications hobbyists. Please be sure to include some personal background on yourself and your interest in your chosen topic. Also, let us know if you have ever written a continuing monthly column for a club publication, hobby or professional newsletter, etc. Even if we don't use your concept right away, if we like what you've got to say we'll keep you in mind for consideration for the future. You could become a member of what many feel is the monitoring hobby's most elite group, a Popular Communications columnist!—Editor.

Likes The Washington News

As a subscriber to *Popular Communications*, I wanted to let you know how much I value the "Washington Pulse" section. The average person has no better or more economical way of keeping up with FCC actions. This section should be expanded, so far as I am concerned.

Henry Hampel,
St. Louis, MO

Scanning The Mysterious East

From Key West To Bangor, & On To Baghdad, East Is Where The Action Is!

BY CHUCK ROBERTSON

When the Pilgrims landed at Plymouth Rock, they couldn't have imagined that by the Twentieth Century, the entire East Coast would be linked to the world by radio. Favorable conditions can propagate HF and low band VHF signals hundreds and even thousands of miles instantaneously. They would have thought it supernatural—or worse!

Today's scanner receivers allow you to sit in your home and listen in on the signals arriving from the great and mysterious Eastern Frontier.

The Wild, Wild East

From my Illinois monitoring post, most of my East Coast monitoring takes place during the summer Sporadic-E season. Now that the seasons are changing, so are the propagation conditions. Long haul F2 skip is upon us, so monitors in the western areas of North America and overseas can also tune in.

Monitors in all areas always enjoy looking for and listening to New York City's colorful "Gypsy Cabs." These are (often unauthorized) taxicabs and private car services operating predominantly by and for residents of high crime and ethnic neighborhoods. Most have two way radios, although seemingly seldom operated with the sanction of the FCC. The radio systems turn up on the darndest frequencies, even in the 10 meter ham band.

Gypsy cabs chatter profusely in English and Spanish, plus Arabic, Russian, and also Asian languages. Despite the language, you can pick out New York City locations such as Broadway, LaGuardia, JFK (airport), Brooklyn, and Bronx.

The Gypsy cab companies go in and out of business rather quickly, and their frequencies also tend to change regularly. Some of the best heard frequencies of late are 30.94, 30.98, 31.02, 31.06, 31.08, 31.10 (AM and FM), 31.12, 32.00, 33.00, 33.12, 33.14, 35.00, 35.01, 35.02, 35.03, 35.04, 36.00, and 36.04 MHz. They can turn up anywhere. The FCC has had only very limited success in removing these stations from the air. One guess is that FCC field personnel may not be overly anxious to run investigations in the rough neighborhoods where the stations are operated, much less attempt to hassle those who run the stations.

Look in other directions if you seek surveillance operations. Florida has no shortage to offer. Plenty of land mobile undercover operations in the 44.62 to 46.02 MHz band. Marine patrols show up here, too.

Tune for NASA security patrol helos at Cape Canaveral on 46.65 and 60.25 MHz. Other NASA helos use 46.40 MHz.

Don't forget a visit to the Statue of Liberty, which operates on 34.79 MHz.

Best Bets For East Coast Scanner Skip

27.43: Dominican Car Service, Queens, NY (FM).
27.45: Eagle Detective Agency, Worcester, MA (AM).
27.47: Citicab Limo Svc., Bronx, NY (FM).
30.10: "Terra 1," Grumman test facility, FL. Sometimes a continuous tone is transmitted.
30.76: Hampton Estates Security Svc., E. Quogue, NY.
30.80: Westac Security, FL.
30.84: Stroop Security, Charlotte, NC (500 2-watt AM units).
30.86, 30.90, 31.02, 31.06, 31.18, 31.78: SC Conservation Police.
30.92: Love Birds Car Svc., Brooklyn, NY.
30.94, 31.02: S. Florida Water Mgt. District
30.96: Pronto Car Svc., Bronx, NY.
31.00: All Boro Express, NY.
31.10, 31.14, 31.30: GA State Conservation Police.
31.16: Invex Investigation Agency, Webster, NY.
31.24: Comsec Narraganset Security, Taunton, MA.
31.34, 31.38, 31.46: MA Conservation Police.
31.54: NC Conservation Police (also 30.98, 31.22, 31.26, 31.34, 31.38, 31.42 31.46, 31.50).
31.62: RI Conservation Police (also 31.54, 31.58, 31.66, 31.70).
32.10: NH National Guard (also 38.55).
32.53: Pentagon, DC. VIP taxis (base: 32.87).
32.70, 36.50, 38.05, 38.30, 38.45, 40.45: FL National Guard.
32.90: Range Control, Ft. Jackson, SC.
33.06: KGA842, Wash., DC ambulance dispatch.
33.14: ProComm Security Syst., Mt. Vernon, NY. 500 2-watt AM units, telemetry.
33.16, 35.98: Kiss Car Svc., Bronx, NY.
33.90: Lakes Regional Fire Mutual Aid Net, NH.
34.00: Range Control, Ft. Dix, NJ.
34.30, 34.85, 51.15, 65.50: USCG around FL, sea/air ops.
34.79: Statue of Liberty, NY/NJ. Base ID's as "703" (KID703). Ferries are Liberty 1 & 2. Other vessels ID as Boat ###.
35.06: Ethical Investigators, Richmond, VA.
35.08: Sizemore Security Int'l., Augusta, GA.
35.12: Baron Security, Montvale, NJ; Private Detective Investigations, Jamestown, NY.
35.72: Hate To Wait Car Svc., Brooklyn, NY.
35.88: U of FL, Gainesville, KIH861.
35.90: Mac Pace Patrol, Charleston, SC.
35.92: Advance Burglar Alarm Syst., Brooklyn, NY.
35.94: KFD835, Duke U., Durham, NC.
35.96: Baker Protective Svc., Long Island City, NY; ADT Security, NJ; Gold Star Security, Camden, NJ; Industrial Security Agcy., Greensboro, NC.
36.25, 41.71, 47.48: Thermo Jet, NJ. Oil spill clean-up.

The USCGC Campbell, typical of the vessels to be heard via skip on VHF low band. (Photo by David Torres, NY.)

As you can see, there are interesting things to hear. And don't forget private investigators and many other stations. Some of those recently logged are shown in the accompanying table.

Deathdealer

The waters around south Florida are very active with drug smuggling traffic and radio comms. Backed by the lure of big money, wave after wave of clandestine vessels and aircraft continually head for the American coast. It never stops.

Listen for US Coast Guard cutters and aircraft involved in hunting down the smugglers. Channel TAC-3 is 34.30, TAC-4 is

36.63, 36.69, 36.91: VIP limos, Wash., DC area.
36.71, 36.79: Pentagon security & escort, DC.
37.005: Tenneco Corp., Haverhill, Hopkinton, & Willbraham, MA; Bay St. Louis, MS; Brainard & Clyman, NY; Carrolton, NY; Jasper TX. Stations run 250 to 300 watts, send telemetry.
37.54: Bangor Hydroelectric, ME.
37.94: NH Dept. Public Works (Weather at 7 p.m. EST).
38.50: NY National Guard helos.
38.83: Ft. Wadsworth, NY City, NY. Security.
39.10, 39.18: FL Civil Defense. Statewide.
39.90: NY City Dept. of Correction transportation vans.
40.39: USCG Security, NY City, NY.
40.40: VA National Guard helos.
41.00: NY National Guard helos.
41.70: Range Control, Plattsburgh AFB, NY.
41.95: Control Tower, Quantico, VA (USMC).
42.10: WV State Police bases (mobiles 42.26).
42.96: Wilson Security Svc., Statesville, NC.
42.98: Liberty Telecomm Security, Liberty, NY. 500 2-watt units.
43.00: KNAP301, Nat'l. Radio Observatory, Greenbank, WV.
43.70: Haven Car Svc., New York, NY.
43.76: American Sightseeing, Miami, FL.
43.92: Transtrack, Inc., Marion, MA. Meteor burst comms.
44.22: Commercial Carrier Corp., FL (many locations).
44.76: FL Dept. of Parks.
44.80: FL Marine Patrol (and a/c).
44.96: FL Marine Patrol dispatch (mobiles 45.00).
45.06: FL police intersystem.
45.16: PA state prisons.
46.16: CT statewide fire net.
46.40: NASA helos, Kennedy Space Center, FL.
46.65: NH National Guard.
46.90: DE National Guard.
47.00: RI National Guard.
47.14, 47.34: ME Dept. of Transportation.
47.30: PA State Highway Maintenance (mobiles 47.38).
47.32, 47.34: GA Highway Dept.
47.38: CT Dept. of Transportation (also 47.30).
47.80: NY City sewers.
48.16: ME Central Power.
49.535: Pegasus Message Corp., Herndon, VA. Meteor burst comms. Continuous telemetry.
49.65: Ft. Benning, GA. Medevac.
49.90: Ft. Drum, NY. Control tower.
50.00, 52.00: Mil ops, FL.

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SIDE REJECTION: 50-55 DB True
BACK REJECTION: 40 DB True
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LENGTH: 17 ft., 6 in.
SWR: 1.1
HORZ. to VERT. SEPARATION: 25-30 DB
WIND SURVIVAL: 100 MPH
POWER MULTIPLICATION: 65X
AUDIO GAIN: 22 DB
WIND LOAD: 5.2

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SPECIFICATIONS:
TYPE: Horz. & Vert. Polarization Single Feed
GAIN: 15.5 DB on DX
FRONT to BACK RATIO: 50 DB True
SIDE REJECTION: 45-50 DB True
BACK REJECTION: 35 DB True
WEIGHT: 24 lbs.
LENGTH: 12 ft.
SWR: 1.1
WIND SURVIVAL: 100 MPH
POWER MULTIPLICATION: 50X
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WIND LOAD: 2.8

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Some Scanner DX Loggings from Mark Knowlton, FL

25.07: Soviet naval comms, worldwide. SSB.
25.169: Argentine SSB radio link. ID's as LJL.
27.70, 29.80, 29.85, 29.90, 29.95, 30.00: US mil, Mideast, WFM.
29.925, 30.275: Mideast radiophones. AA. NFM.
30.04, 30.18: Buses, Canada.
30.10: Dozer & Texas Jake (Desert Storm). Also SS from Chile.
30.125, 30.25, 30.75, 31.15, 31.50, 32.10, 32.125, 32.155, 32.20, 32.25, 32.35, 32.40, 32.45/USB, 32.525: Soviet mil.
30.14, 33.50: Canadian trucking.
30.15: UK airbase.
30.175, 35.04: Mexican petro comms.
30.20: "Bismarck to Police 5. Investigate a drunk pedestrian at Building 842...Fight at NCO Club." US MP ops, possibly Panama. In Central time zone. German mil here & on 30.80.
30.26, 30.515: Dutch.
30.30: Canadian naval, Halifax, NS.
30.34, 31.37, 31.96: Canadian fishing vessels.
30.35: Long Rifle, Camp Pendleton USMC, CA.
30.40: Irish mil.
30.45: Dragon Control (Desert Storm). Also Ft. Hood, TX.
30.475: San Salvador, El Salvador. Taxicabs.
30.50: US Embassy, England.
30.58: Japan.
30.663: Russian from Iraq.
30.785: Aramco radiophone, Mideast.
30.85: USSR news (RTTY).
31.00, 31.35, 31.375, 42.25: UK mil.
31.02: Spain.
31.20: Taxicabs, FF.
31.35: Radiopager, Uruguay. SS.
31.48: Gulf Fleet, LA. FM & SSB.
31.65, 33.00, 40.125, 40.175: Caribbean stations, EE.
31.725: Dutch West Indies mil.
31.80: Desert Storm repeater output, US mil.
31.85: US a/c, DC area.
32.15: Pagan 11 (Desert Storm). Also Saudi ops.
32.23: Camp David, MD.
32.30: Bearcat #, McGregor Range, Ft Bliss, TX/NM.
32.315, 32.88, 34.37: Brazil.
32.35: Thunderdome, Ft. Irwin, CA (Maintenance Ops.).
32.40: Israel. Also US Bluejays.
32.45, 37.76, 42.84: USSR (USB comms).
32.60, 32.75: AWACS a/c.
32.80: Arabic. Also US Bluejays.
33.03, 33.10, 33.15, 33.20, 33.25, 33.35, 33.375, 33.75, 34.20, 34.30, 34.40, 34.73, 34.90, 37.65, 38.00, 38.20, 40.36: Israel.
33.055, 33.075, 33.15, 33.175, 33.225, 33.385, 33.40, 33.465, 33.475, 33.50, 33.525, 33.535, 33.55, 33.60, 33.775, 33.80, 33.85, 33.90, 34.00: Soviet mil comms.
33.35: Cuban collective farms.
33.375, 34.00: Turkish.
33.40: Cyprus mil Police. Also RSA police.
33.76, 34.38: Mexico.
33.92: Radiopager, French Canadian.
34.025: Jamaica.
34.05, 42.65, 42.80, 43.30: RSA.

34.85, and you can also hear activity on 51.15 and 65.50 MHz. It is possible that 34.45 is TAC-1, as it is another active anti-smuggler frequency.

Search and seizure operations with the ID of *Deathdealer* had long been logged on 37.00 MHz, but they haven't been noted there of late. Probably moved to another frequency in the low band (30 to 76 MHz). You might find them if you search in 50 kHz steps.

Coast Guard and DEA operations off the Florida coast have been logged on 41.80 MHz. It would seem that low band radios have the necessary communications capabilities to keep them as an important weapon in the war on drug smugglers.

State of Florida marine patrols use 44.76, 44.80, 44.96, 45.00, and 45.06 MHz. The primary seems to be 44.80 MHz.

There are plenty of unauthorized operations, too. Illegal radiophone bases operated by marines are on 47.65 (Tampa) and 47.83 (Ft. Lauderdale). Others have been monitored on 29.755, 29.825, 47.47, 47.53, 47.59. and 47.77 MHz.

A drug courier in the Miami area used to be active on 29.825 MHz. He hasn't been heard in a while, so either he changed frequency or else he finally got busted.

Mother of All Scanner Skip?

Mark Knowlton, a Florida scannist, was manning his scanner during Operation Desert Storm. In fact, some of the inside information he picked up was used by one of the major news networks.

Mark told me that among the interesting things he picked up came through on an Ira-

34.10: German mil.
34.20: Arab radar nets.
34.25, 34.275, 34.45, 34.51, 34.90, 36.00, 36.625, 36.775, 36.90, 37.00, 37.30, 38.00, 38.225, 38.675, 39.05, 39.275, 41.31, 41.40, 41.55, 41.685, 41.70, 41.725, 41.75, 41.85, 41.925, 42.10, 42.14, 42.24, 42.225, 42.30, 42.34, 42.35, 42.40, 42.45, 42.60, 42.70, 43.30, 43.75, 44.40, 45.00: USSR
34.31: White Sands Missile Range repeater (input 34.85).
34.40: 82nd Airborne (Desert Storm).
34.45, 34.75: USN vessels Texas Jake, Red Sea, Candy Cane.
34.51: Soviet aero (AM).
34.75: Saudi mil aero spotters.
34.78, 40.56: Mexican petro comms.
34.82: German auto assistance repeaters. Others 34.76 to 35.00.
34.90: Talk of "A-7 Freeway," in FF.
35.42: Canadian moving company (repeater).
35.625: French PD. Others 34.90 to 36.20 (12.5 kHz spacing).
35.725: RTTY sigs.
36.05, 36.33, 36.39: Nevada Test Site repeaters.
36.07: Camp David, MD. Nationwide Treasury channel.
36.12, 36.14, 36.30: German repeater, may be a FD.
36.40: USMC (Desert Storm).
36.485: Power utility, West Indies.
36.65: USN, CA. Also UK mil.
36.80: Furry, US mil sta. Also Israel.
36.91: White Sands Missile Range, NM. Security. Also 36.51.
37.00: RSA PD's. Others 37.00 to 38.50 (25 kHz spacing).
37.05: US mil air spotters (Desert Storm).
37.10: US mil road guards.
37.19: Dominican Republic repeater (input 31.37).
38.30, 41.70: USAF/SAC.
38.45, 38.65, 38.95, 41.60: White Sands Missile Range, NM.
39.10: Iran.
39.18: Parks repeater, Venezuela.
39.60, 39.725: Radiophones on RSA ranches.
39.64: Radiopager, Argentina.
39.70, 39.72: German police repeaters.
40.25: Shrimp boats.
40.32: Cuban repeater.
40.92, 41.22: Rio de Janeiro, Brazil.
41.00, 41.80, 42.65: Iraqi repeaters.
41.15, 43.15: Radio Netherlands STL.
41.20, 41.55, 41.75: USCG.
41.30: Ghost Rider, US mil.
41.35: Venezuelan repeater (input 35.58 picks up US skip).
41.45: Amaco in the Caribbean.
41.77: Grand Canyon National Park, AZ.
42.05: US mil, Saudi Arabia.
42.225: USSR (CW).
42.94: SS taxicab. NY City?
43.50: Radiopager, Haiti.
43.96: Haiti.
46.40: US mil road guards in Panama.
46.46: TV crew repeater, Canada.
51.175, 51.40, 51.70, 53.025: Radiophones, Guatemala.

qi repeater (42.30 MHz output, 41.8775 MHz input). A few hours before SCUD's were launched at Israel, he picked up a SCUD launch number sequence in Russian! A few days later, this same frequency produced Saddam Hussein, in person, giving orders.

Prior to the war, the repeater was used by Iraqi Airlines, in Baghdad. After the war began, it was where the SCUD launch sequences were to be heard.

Some of Mark's worldwide skip loggings are given in a table accompanying our story this month.

Ready, Get Set, Scan!

The F2 layer skip season is now here and in full swing. Check daily for signals arriving from around the world. At frequencies above 30 MHz, F2 skip "follows the sun." Look for opening to Europe and Africa in the morning, beginning shortly after local sunrise and hanging in till about midday. The far Pacific regions show up by afternoon. Most of the American continent can be heard all day.

A secondary peak in Sporadic-E (short-hop) skip should begin this month (November) and last through January. Expect distances of 450 to 1,300 miles, typically. Multiple hops can increase this distance to 2,500 miles or more. Sporadic-E can kick in at just about any time, day or night. Best bets are early evening hours.

We welcome your skip reception loggings between 30 and 76 MHz, comments, and photos of monitoring stations or low band communications facilities. Write to us in care of *POP'COMM*. ■

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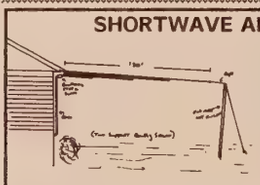

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CIRCLE 153 ON READER SERVICE CARD

Selected English Language Broadcasts

Fall – 1991

BY GERRY DEXTER

Note: There are hundreds of English language broadcasts aired every day on shortwave. This is a representative listing and not intended to be a complete guide. While the listing is as accurate as possible, stations often make changes in their broadcast hours and/or frequencies, often with little or no advance notice. Some broadcasters air only part of a transmission in English or may run the English segment into the next hour or more. Some stations have altered schedules on weekends. Numbers in parenthesis indicate a starting time for English that many minutes past the hour. All times are in UTC.

Time	Country/Station	Frequencies
0000	Radio Prague Int'l	7345, 9540, 11990
	WRNO, New Orleans	7355
	Kol Israel	9435, 11605, 15640
	R. Kiev, Ukrainian SSR	11790, 13645, 15180, 15455, 15485
	Herald Broadcasting, USA	7395, 9850, 13760
	R. For Peace Int'l, Costa Rica	7375, 13670, 15030
	R. Yugoslavia	9620, 11735
	R. Havana Cuba	11950
	R. Beijing	15100, 17705
	Spanish National Radio	9630, 11880
	R. Pyongyang, N. Korea	13760, 15115
	R. Korea, S. Korea	15575
	R. Moscow	12055, 15570, 17655, 17665, 17700, 21480, 21690
	R. Budapest, Hungary (30)	6020, 6165, 15560
	BBC	5975, 6175, 9590, 9915, 12095
	HCJB, Ecuador	9745, 15115
0100	RAI, Italy	9575, 11800
	R. Japan	5960, 11840, 15195, 17810, 17835, 17845
	R. Tashkent, Uzbekistan	7190, 7335
	R. Alma Ata, Kazakh (30)	5035, 5915
	R. Prague Int'l	5930, 7345, 9540
	Kol Israel	9435, 11605, 15640
	R. Austria Int'l (30)	9870, 9875, 13730
	Deutsche Welle, Germany	6040, 6145, 6155, 9564, 11865, 11890, 13610, 13770, 15105, 15405
	WHIR, Indiana	7315, 9495
	R. Norway (Sun/Mon)	11925, 15360
	RAE, Argentina	11925, 15360
	RAE, Argentina	11710
	V of Greece (30)	9395, 9420, 11645
	R. Budapest, Hungary (30)	6110, 9520, 9585, 9835, 11910, 15160
0200	R. Portugal (30)	9555, 9600, 9705, 11840
	R. Cairo	9475, 9675
	R. Sweden	9695, 11705
	Swiss Radio Int'l	6125, 6135, 9650, 9885, 12035, 17730
	Vatican Radio (50)	7305, 9615
	R. Tirana (30)	9580, 11825
	R. Havana Cuba	11950, 15140
	R. Canada Int'l	6035, 6125, 7230, 7260, 9650
	V of Free China, Taiwan	5950, 9680, 15345
	R. Yerevan, Armenia (50)	11675, 11790, 15180, 15455
	V of America	9575, 11835, 15115, 17715, 21600
	V of America	9575, 11835, 15115, 17715, 21600
	R. Norway (Sun/Mon)	15360

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CIRCLE 170 ON READER SERVICE CARD

Time	Country/Station	Frequencies
	R. Romania Int'l	5990, 6155, 9510, 9570, 11830, 11940
0300	R. Sofia, Bulgaria	11720, 15160, 17825
	R. Japan	15325, 17825, 21610
	R. Prague Int'l	5930, 7345, 9540
	R. Sweden (30)	9695, 11705
	R. Tirana, Albania (30)	9580, 11825
	Deutsche Welle, Germany	6085, 6145, 11810, 11890, 13610, 13770, 15205, 15245
	R. Beijing	15100, 17715
	Trans World Radio, Bonaire	9535
	R. Netherlands	6165, 9590
	V of Greece (30)	9395, 9420, 11645
	R. Cultural, Guatemala	3300
	UAE Radio, UAE	11945, 13675, 15400, 15435
0400	R. Canada Int'l	15275, 15445
	R. Prague Int'l	5930, 7345, 9540, 11990
	Kol Israel	9435, 11605, 15640
	R. RSA, South Africa	5060, 11860, 11920
	Swiss Radio Int'l	6135, 9650, 12035
	R. Havana Cuba	5965, 11760, 11950, 15140
	V of Turkey	9445
	R. Romania Int'l	5990, 9510, 9570, 11830, 11940, 15380
	WMLK, Pennsylvania	9465
	WHRI, Indiana	7315, 9495
0500	R. Japan	15195, 17765, 17810, 17890, 21610
	R. Austria Int'l (30)	6015
	Deutsche Welle, Germany	5960, 6120, 9670, 9700, 11705, 11925, 13610, 13790
	R. Moscow	9505, 9530, 9685, 9685, 11675, 11930, 11980, 15180, 15240, 17605, 17665, 17700, 17720
	Spanish National Radio	9630
	HCJB, Ecuador	9630
	V of Nigeria	7255
0600	BRT, Belgium (30)	6035, 11695, 13675
	R. New Zealand Int'l	17770
	Herald Broadcasting, USA	9455, 9840, 11705
	Swiss Radio Int'l	3985, 9535, 6165, 15430, 17570, 21770
	R. Havana Cuba	11760
	Trans World Radio, Moscow (35)	9480
	R. Korea	11810, 15170
	R. Polonia, Poland (30)	7270, 9675
0700	R. Japan	15325, 17765, 17810, 17890, 21575
	Solomon Is. Broadcasting Corp	5020, 9545
	R. New Zealand Int'l (30)	9700
	R. Austria Int'l (30)	6155, 13730, 15410, 21490
	Adventist World Radio, Italy (30)	7230
	HCJB, Ecuador (30)	9745, 11925
0800	GBC, Guyana	5950
	KTWR, Guam (27)	15200, 11805
	Trans World Radio, Monaco (55)	11655
	R. Austria (30)	9580, 9710, 15160, 15240, 15320, 17630
	Adventist World Radio, Portugal (Sun)	9670
	KNLS, Alaska	11815
0900	BRT, Belgium	9925, 13675, 21815
	R. Japan	11840, 21610
	R. Ulan Bator, Mongolia (10)	12010
	CFRB/CFRX, Canada	6070
	R. Beijing	11755, 15440, 17710
1000	V of Vietnam	9840, 12020, 15010
	Adventist World Radio, Italy (30)	7230
	VOIRI, Iran (30)	9505, 9705, 11715, 11790, 11940
	R. Korea, So. Korea (30)	11715
	R. Australia	9580, 11800, 15160, 15320
	Adventist World Radio/KSDA, Guam	13720
	V of America	9590, 11915, 15120
	R. Moscow	11710, 12050, 15140, 15150, 15475, 17660, 17810, 17890
1100	R. Japan	6120, 11815, 11840
	R. RSA, So. Africa	9555, 11860, 11900
	Adventist World Radio, Costa Rica	9725, 11870
	R. Finland (30)	15400, 21550
	Trans World Radio, Bonaire	11875, 15345
	R. Pyongyang, No. Korea	6576, 9977, 11335
	R. Jordan	13655
1200	R. France Int'l (30)	9805, 11670, 15195, 21635, 21645
	R. Bangladesh (30)	15605, 15660v, 17750
	R. Cairo, Egypt (15)	17595
	Swiss Radio Int'l	6165, 9535, 12030
	R. Finland (30)	15400, 21550
	R. Yugoslavia	17725, 17740, 21600
	V of People of Cambodia	9695, 11938
	R. Canada Int'l	9635, 11855, 17820
	R. Beijing	17855
	Radiobras, Brazil	11745
	V of Greece (35)	15640, 15650, 17525
	R. Norway (Sat/Sun)	17820, 21700
1300	Lao National Radio	7113
	All India Radio (30)	11760, 15170
	R. Finland (30)	15400, 21550
	R. Canada Int'l	11955, 17820
	R. Pyongyang, N. Korea	9325, 13650, 15230
	R. Moscow	15515, 17660, 17810, 17840, 17880, 21690, 21785
	R. Tashkent, Uzbekistan	9600, 15470
1400	R. France Int'l	11910, 17650, 21770
	R. Japan	9535, 11815, 11865
	R. Ulan Bator, Mongolia (45)	9795, 13780
	R. Austria Int'l	6155, 11780, 13730, 21490
	R. Australia	5995, 6080, 9580, 7240, 11910, 17535
	R. Polonia, Poland (30)	6135, 9540, 11815
	WRNO, New Orleans	15420
1500	V of Ethiopia	9560
	Vatican Radio (45)	15090, 17880
	Deutsche Welle, Germany	9735, 11965, 13610, 17735, 17765, 21600
	R. Canada Int'l	11935, 15305, 15325, 17820, 21545
	R. Norway (Sat/Sun)	15355, 17790
	FEBA, Seychelles	11865
	WWCR, Tennessee	15690
	V of Vietnam	9840, 12020, 15010
1600	R. France Int'l	6175, 11705, 12015, 15530, 15530, 17620, 17795, 17850

Time	Country/Station	Frequencies
	R. RSA, So. Africa	7230, 15210, 17790
	R. Alma Ata, Kazakhistan (30)	5035, 5915, 6135, 7230
	R. Canada Int'l	11935, 15305, 15325, 17820, 21545
	Adventist World Radio, Guam	11980
	BSKSA, Saudi Arabia	9705, 9720
	HCJB, Ecuador (30)	21480, 25950
1700	R. Sofia, Bulgaria (30)	11660, 11720, 11765, 15330, 17780, 17825
	BRT, Belgium (30)	9925, 13675, 21815
	R. Afghanistan (30)	11845, 15510
	R. Pakistan	11570, 15550
	R. RSA, So. Africa	17835
1800	R. Yugoslavia (30)	6165, 15165
	Radiobras, Brazil	15265
	VOIRI, Iran (30)	6035, 9022
	R. Canada Int'l	13630, 15030, 21565
	V of America	9575, 11920, 15410, 15580, 17800, 21625
1900	R. Sofia, Bulgaria (45)	11765, 17780, 17825
	RAI, Italy (35)	7275, 9710, 11800
	Kol Israel	11605, 15640, 17685
	R. Romania Int'l (30)	7145, 9690, 9750, 11940
	Spanish National Radio	15375
	R. Portugal	11740
	R. Moscow	9720, 9740, 11840, 15475
2000	R. New Zealand Int'l	13785
	Herald Broadcasting, USA	13770, 15610, 17555
	Radio For Peace Int'l, Costa Rica	13670, 15030, 21460

Time	Country/Station	Frequencies
	R. Havana Cuba	17835
	R. Damascus, Syria (05)	12085, 15095
	R. Portugal	15250
2100	R. Sofia, Bugaria (45)	11660, 11710, 15110, 15330, 17825
	Kol Israel (30)	11588, 15100, 15649, 17685
	Swiss Radio Int'l	9885, 12035, 13635, 15525
	R. Yugoslavia	5960, 11735
	R. Damascus, Syria	12085, 15095
	BBC	5975, 9590, 15070
	KVOH, California	17775
2200	R. New Zealand Int'l	17700
	V of the UAE, UAE	13605, 15305, 15305, 17855
	R. Canada Int'l	5960, 9755, 11905, 13670
	V of Free China, Taiwan	17750, 21720
	R. Havana Cuba	11930
	BBC	5975, 9590, 9915, 12095, 15070
	R. Norway (Sat/Sun)	21705
2300	BRT, Belgium (30)	13675, 13720
	All India Radio (15)	11715, 11745, 15110, 15135, 17830
	Kol Israel	9435, 11605, 15640
	R. Vilnius, Lithuania	11790, 13545, 15180, 15455, 15485
	Adventist World Radio, Costa Rica	9725, 11870
	R. Canada Int'l (30)	5960, 9755, 11730, 13670
	V of Turkey	9445

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CIRCLE 139 ON READER SERVICE CARD

Radio, As It Was

We Recall Stations That Know The Meaning of Staying Power!

BY ALICE BRANNIGAN

Let's visit a broadcaster that was established in 1933 on a historic site. That's WKOK, Sunbury, in eastern PA. The station was built on the site of Fort Augusta (1756) near the original Indian village of Shamokin.

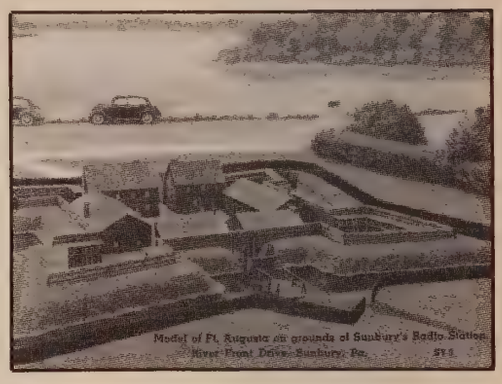
The fort had been constructed as a defense against the French and the Indians. Shikellemy, Chief of the Six Nations, who wanted protection against raids by their Indian enemies (who were allied with the French) asked colonial authorities to establish the fort at this strategic point, which is the confluence of the east and west branches of the Susquehanna River. During the American Revolution, the fort proved to be both a refuge for those fleeing from Iroquois raids, and as a base of supplies and men for Gen. Sullivan's expedition (1779) that ended the Iroquois attacks. The site is now a state park. The site is also the location of several other historic structures, former Indian villages, and a monument to Chief Shikellemy. Sunbury is also reputed to be where Edison started the world's first electric lighting plant.

This was where WKOK opened its operations on 1210 kHz with 100 watts under the auspices of the Sunbury Broadcasting Corp., H. H. Haddon, President. The station was installed in a picturesque white colonial style building with four large columns across the front, and a second story front porch. On the grounds of the station, a complete scaled down replica of the original fort was constructed.

As the 1940's came along, WKOK shifted frequency to 1240 kHz and upped its power to 250 watts. In 1948, an FM outlet (now WQKX/94.1) was added. By 1963, WKOK had secured FCC permission to move to 1070 kHz and increase its power to 10 kW.

WKOK is still owned by the Sunbury Broadcasting Corp., with Roger S. Haddon, President. In an industry where it isn't at all unusual for broadcasting stations to change owners every couple of years, it's refreshing to see a station like WKOK that has remained with its original owners right from the start almost sixty years ago.

The early postcard view shows the WKOK studios in Sunbury, PA.



On WKOK's front lawn, they built a scale model of historic Ft. Augustine.

Corny, But True

Not many broadcasters can legitimately claim that their roots go back to 1911, but we know one that can. That was the year that ham station 9YA was licensed to Iowa State University, Iowa City, Iowa. For more than a decade, the station was used exclusively for code transmissions to contact other Amateur operators. One of the students who began working at the station in 1917 was Carl Menzer.

In 1919, 9YA received an experimental authorization to transmit a regular schedule of music and voice broadcasts. On June 26, 1922, 9YA's experimental authorization was changed to a regular non-commercial broadcasting license with the call letters WHAA, and was assigned to run 200 watts on 833 kHz. A secondary Experimental license with the call letters 9XAZ was also assigned at that time.

In 1923, Prof. Carl Menzer, the former student, was appointed as the station director of WHAA. The year 1924 saw WHAA shifted to 620 kHz and running 500 watts.

Major changes were ahead and, by 1925, its call letters had been changed to WSUI. In 1928, the station had moved to 630 kHz, only to be told to again move, next to 970 kHz. Two years later, WSUI ended up on 880 kHz, where it rode out the 1930's, upping its power to 1 kW by the middle of the decade.

WSUI went into the 1940's by shifting over to 910 kHz and increasing its power to 5 kW. This is still its present frequency and power. Interestingly, we understand that Prof. Menzer stuck with the station as its director for many, many years, and held the important post at least into the 1960's.

Another interesting fact about WSUI is that its FM affiliate has the call letters KSUI. We wonder if there are any other AM/FM combos with one station having a "W" and the other having a "K" prefix. We doubt that there are any others, especially with matched callsigns.

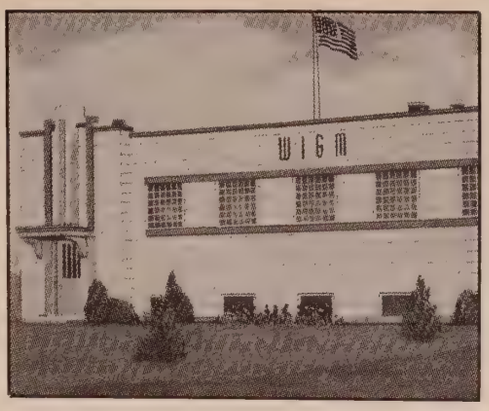
Staying Power

In Medford, WI station WIGM came on the air October 26th, 1941. WIGM was running 250 watts on 1490 kHz, and its call letters incorporated the initials of Irene and George Meyer, the station's owners. The Chief Engineer was Ray Rohnert.

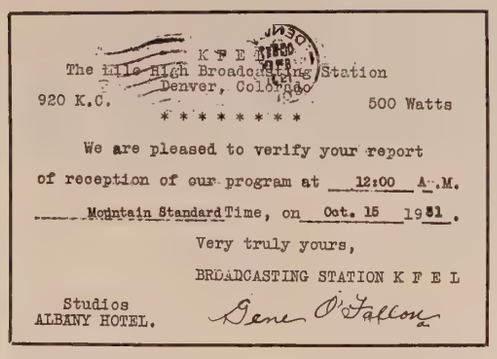
A picture postcard we have in the archives of WIGM when it commenced operation shows it was housed in a split-level building with glass brick windows in the front and what looks to be a white tile or glazed brick exterior with blue trim. The entrance, to the left, has a smart looking Art Deco motif. This structure was built on scenic Highway 13.

Today, exactly fifty years after WIGM began broadcasting, the station still operates on 1490 kHz, except now it's running 1 kW. In June of 1955, ownership was transferred to WIGM, Inc. An FM outlet (WIGM-FM/99.3) was added in December of 1968. Through these changes and the passing years, one thing has remained constant, and that is Ray Rohnert. Mr. Rohnert remains a vital member of the WIGM as the station's Chief Engineer, and has also taken

Here's the Communications Center at the State University of Iowa, Iowa City, home of WSUI and KSUI. Note the antenna tower to the left rear of the building.



WIGM went on the air from this Art Deco building in 1941.



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on the added duties of News Director and Secretary-Treasury of WIGM, Inc.

Here's our best wishes for the next fifty for both WIGM and Ray Rohnert.

More Staying Power

Here's the story behind the oldest continuously operated broadcast station in Denver, CO. It all began on July 4, 1922, under the call letters KFEL, a 50 watt station on 834 kHz. This was operated by Capt. W. L. Winner, of the Winner Radio Shop, at 1435 Welton Street. Winner's station used the slogan, "Come live in Colorado."

KFEL prospered, and quickly lined up its first regular advertiser, Elitch Gardens Amusement Park and Botanical Spot. Elitch remained with KFEL for years. In 1924, KFEL shifted over to 1180 kHz.

In 1928, Winner sold KFEL to Eugene ("Gene") O'Fallon, who had been one of the original station stockholders and was the station's Sales Manager right from its first day on the air. O'Fallon moved KFEL to 203 East Colfax St., upped the power to 250 watts, and put it on 1320 kHz, although in late 1928, the government changed KFEL's frequency to 1120 kHz. O'Fallon called KFEL "The Argonaut Station."

By 1930, KFEL had changed its frequency again and was on 920 kHz, running 500 watts. The studios were in the Albany Hotel, with the transmitter and 285 ft. tower located at 5580 (later 5350) West 20th Ave., Edgewater Branch, Denver.

As the 1940's rolled in, KFEL moved over to 950 kHz and increased its power to 5 kW, and and FM outlet was added on 98.5 in 1953. In 1954, O'Fallon sold the KFEL to A. L. Glasmann of Ogden, UT. The new owner changed the station's call letters to KIMN, which it remained for more than thirty years.

Presently owned by Jefferson Pilot Communications Corp., the station still operates on 950 kHz with 5 kW, but its callsign has become KYGO. It runs a country music format. The FM outlet (with a separate country music format) operates as KYGO-FM.

We are fortunate in having a 1931 QSL from old KFEL. The veri was sent to a DX'er in Florida whose son was kind enough to donate all of his late father's QSL's to the *POP'COMM* archives, requesting anonymity. This wonderful old QSL was personally signed by Gene O'Fallon. It's not very fancy, being typed and mimeographed, but still a treasure.

Fabulous Fantasy Stations

In recent times, many of us have become familiar with stations WKRP (in Cincinnati), WNDY-TV, and WJM-TV. They weren't actual stations, but nevertheless became well known to the public via the TV series that were set in their studios. Many people believed the stations did exist, and that the stories into which they were incorporated were merely fictionalized tales about the staff members at real stations.

We were reminded of this reader when Barry Nieuworth, of Pasadena, CA submitted a photo showing a sign on the wall of an early 1930's New York City radio station bearing the call letters WADX. Barry said he snapped the photo off his TV screen while he was watching an old movie titled *The Big Broadcast*. He was wondering if WADX was a station of any fame from that era, and if we could write about the station.

WADX was a fictional station invented for the film. The star-studded musical comedy about the station's many business problems was a big hit. The original film was made in 1932, and three sequels (of declining quality) were subsequently produced until the series ended in 1938.

It reminded us about two other early 1930's fabulous mythical radio stations that were far more well known than WADX back in radio's golden era. In their time, although each appealed to its own unique audience, people tuned them in with true dedication.

One station was KUKU, which was part of NBC/Blue's popular comedy-variety program known as *The Cuckoo Hour*. This program started in 1930 and the KUKU segment was a wild mix of one-liners and satirical sketches moderated by KUKU's manager, "Ambrose J. Weems" (Raymond Knight). Some of the zany characters heard over KUKU included Percival Pother, The Green Monster, and Fetlock Soames (of Scotland's Back Yard).

Highly regarded KUKU features were "Personal Service for Perturbed People," conducted by a "Mrs. George T. Pennyfeather." There was also the "Sing-Up-A-Tree-O" musical sing-a-long.

This program had been sponsored by Blue Moon Cheese Spread. Despite its popularity (it took ten weeks to get tickets for the studio audience), when the sponsor canceled because of the tight economy (in 1932), the program went off the air. That drew loud protests from its many fans within literary and academic circles who hailed it as radio's prime example of sophisticated wit.

In 1934, KUKU returned to the air under the sponsorship of A.C. Spark Plugs. Raymond Knight was the creative force behind KUKU, and he went on to do many other brilliant comic things in radio over the years that followed. In later years he became associated with the radio team of Bob and Ray, and is often credited with with influencing the development of their distinctive style of humor.

Not at all sophisticated, but no less popular, was mythical radio station EZRA. This station was run by Uncle Ezra (Pat Barrett), one of the regular cast of characters on the WLS (Chicago) *Barn Dance* program broadcast for rural audiences.

Barrett was born in Holden, MO on September 27, 1887. Being the son of theatrical parents who traveled most of the time, he was raised in Holden by his grandparents. When he graduated from school, he found his way into vaudeville. In 1930, he got a job at WTMJ, Milwaukee, and began working on his Uncle Ezra character. His love and understanding of older people, based upon his own early life experiences, plus his natural wit and insight, was the inspiration for Uncle Ezra. This character was so appealing that Barrett was soon hired by WLS for their *Barn Dance*. WLS found that audiences

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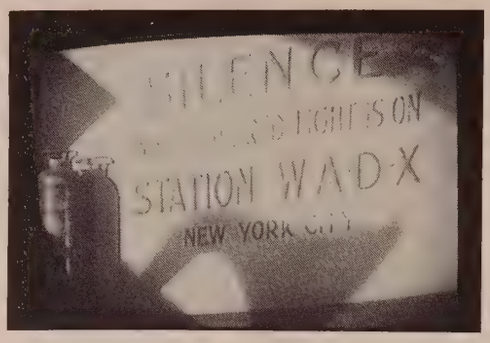
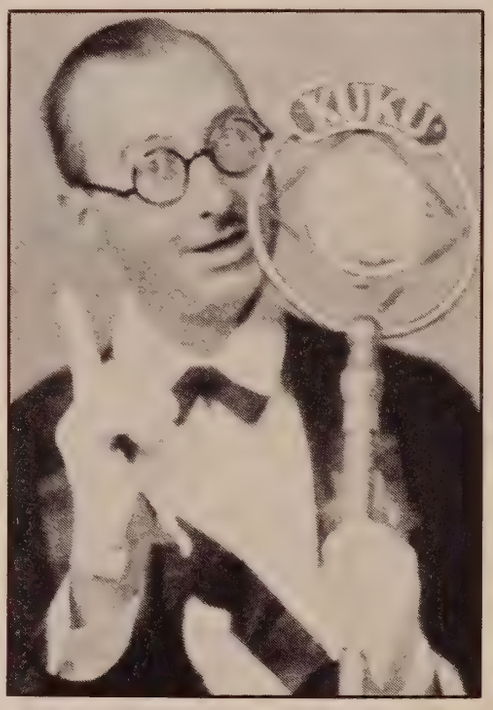


Despite this photo, there was no such station as WADX, although many people might have argued that point. (Courtesy Barry Nieuworth, CA).



When KUKU left the air, there were complaints from intellectuals.

Radio Station EZRA sent out this card to listeners in 1938, showing its fantasy location and station director, Uncle Ezra.

regarded Uncle Ezra as lovable and funny, and believed him to be in his 70's.

This earned Uncle Ezra his own program on NBC, starting in 1934. Three times per week, for fifteen minutes each, Uncle Ezra would broadcast from "Station EZRA, the powerful little 5-watter down in Roslindale." That gave the perfect excuse to tell rural stories and interview some of the colorful people he met on farms and in general stores around the nation. The program was sponsored by Alka-Seltzer.

In 1938, a half-hour Sunday program was added. During 1940 and 1941, there was a half hour program on Saturdays sponsored by Camel Cigarettes. By then, Uncle Ezra's program had earned sufficient production clout to feature regulars the likes of the Sons of the Pioneers, also singer Fran Allison (later of TV's *Kukla, Fran and Ollie*).

We are fortunate in having one of the sort-of QSL cards that were sent out to fans who wrote to EZRA in the belief that it was an actual station. The card is dated 1938, when Barrett was 52 years old. He wore a balding white wig to cover his thick black hair and donned steel rimmed eyeglasses and a white paste-on beard to look like Uncle Ezra for the photo. The card also shows the main street in the fictitious town where station EZRA was supposed to be located, with the two antenna towers. One is on the general store, with the other one on the feed store.

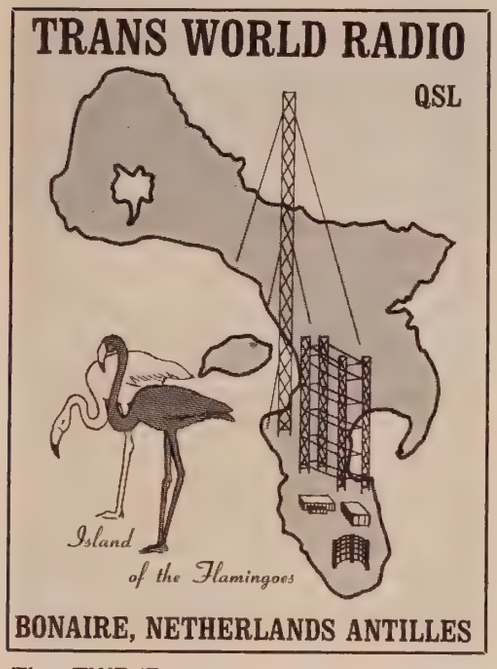
Marconi Building Revisited

That Marconi building in Aldene (Roselle Park), NJ that we ran an old photo of in May and September is still generating mail and reader interest. As we learned, it was the Marconi manufacturing facility and was also used to house RCA's short-lived broadcasting station, WDY. The building is presently used by a company that recycles old clothing into industrial rags.

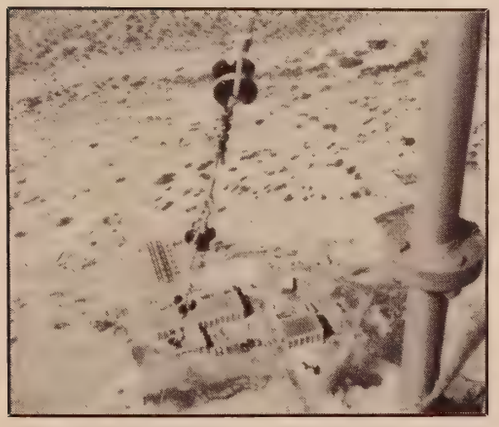
Scott A. Thompson, KA2QQQ, of Lake Parsippany, NJ took a drive over to see the place, which he tells us is on Westfield Avenue, and greatly expanded from the way it looked when Marconi was there. Scott sent us a photo of a bronze plaque affixed to the building, having been placed there in 1976 by the Roselle Park Bicentennial and Anniversary Committee.

Under the heading "Marconi Wireless Building," the plaque reads: "Much of the commercial wireless equipment used in the United States was produced in this building between 1913 and 1919. In 1921, RCA operated station WDY here, where famous

Bronze plaque on the former Marconi Wireless Building recounts its past glories, but is just a little misleading. (Courtesy Scott A. Thompson, KA2QQQ, New Jersey.)



This TWR/Bonaire veri was received in 1964, the station's first year on the air. (Courtesy Owen Williamson, TX.)



A flying flamingo's eye view of the TWR/Bonaire transmitter and diesel generator buildings as they appeared in 1964 from near the top of the station's 760 ft. medium-wave tower.

personalities where heard for the first time on radio. WDY was the first licensed broadcasting station in New Jersey."

Technically, this is a correct statement, although it does fudge slightly. As pointed out previously here, WJY was the first broadcasting license in New Jersey. It was a one-day license issued for use only on July 2, 1921 for broadcasting the Dempsey-Carpentier championship fight in Jersey City. WDY in Roselle Park was licensed eight weeks later on September 19, 1921. Yes, that was the first full-term broadcasting license issued in New Jersey. Even so, Roselle Park's WDY wasn't the first station in the state to actually begin broadcasting. Newark's WJZ was licensed on September 30th, and began broadcasts the next day, October 1, 1921. WDY couldn't get ready for broadcasting until December 14th, ten long weeks after WJZ was in full operation.

WDY had a poor signal in New York City, which was its target area. Few major entertainers wanted to travel by train to its suburban New Jersey studios, so the station filled most of its air time with phonograph recordings. Being a dismal flop, after exactly two months, the station was shut down by its owners. It's a beautiful plaque, though, so let's not quibble that it stretches a few points.

From The Beautiful Caribbean

It may not be ancient history, as such things go, but let's go back to the opening of Trans World Radio, Bonaire, Netherlands Antilles. TWR on Bonaire, which was an expansion of TWR in Monte Carlo, is a non-commercial, interdenominational religious station. It has always been supported by voluntary contributions from individuals, churches, foundations, and organizations.

TWR/Bonaire's mediumwave station went on the air on January 1, 1964 with a 500 kW Continental Electronics transmitter on 800 kHz feeding into a 760 foot tower.

First shortwave tests commenced in April of the same year with 50 kW transmitters used with antenna arrays beamed towards Europe. Later in 1964, a 260 kW transmitter and additional antennas directed at Africa, Latin America, North America, and the Mid East began tests. Altogether, a total of seven corner reflector and curtain antennas were installed in 1964. The tests were in the 16, 19, 25, 31, and 49 meter bands. Programming was in English, Dutch, Spanish, German, and Portuguese.

Today, TWR/Bonaire remains on 800 kHz with 500 kW, ten shortwave frequencies are in use with 50 and 100 kW transmitters.

Thank you for being with us, and we look forward to your being here next issue. We greatly appreciate your letters, as well as information, old QSL's, station rosters, photos, and other data for the archives. Your questions on wireless and radio of bygone days are welcome, too. ■

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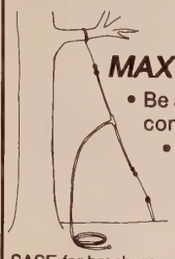

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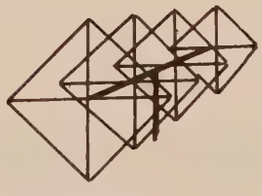

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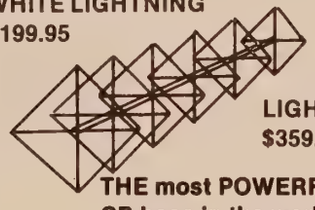

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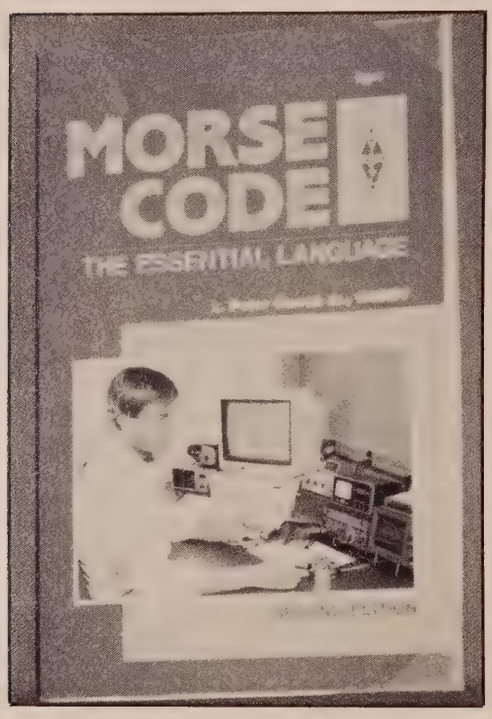
BY R. L. SLATTERY

The Morse, The Merrier!

Don't let the fact that there's now a no-code ham license available from the FCC lull you into thinking that you've heard either your last *di* or *dah*. Morse code, also known as CW, or simply *code*, is still the preferred method of communication for many hams and for certain commercial, federal, and military applications. Having a knowledge of CW, to one extent or another, is also the way you can obtain a ham ticket in the Novice, General, Advanced, or Extra categories.

There have been many methods proposed for learning CW. To some people it comes very easily. Others regard it as an awesome barrier that seems impossible to master, regardless of the time and effort spent, and different efforts tried.



Still, it does seem that there really is at least *some* method or other available that can and will eventually work for every individual willing to seriously apply him/herself to learning. Finding the right one is the problem. I suspect that after only one or two failed attempts at learning CW, fear of future failures is enough to discourage or completely scare off just about everybody except the most stubborn and determined hardnose.

The ARRL, which has been dealing with such matters since the early days of wireless, has brought out the Second Edition of their book, *Morse Code: The Essential Language*, by Pete Carron, Jr., W3DKV.

Pete's excellent (illustrated) book is fine for all embarking on a code-learning excursion, especially those who have sailed previously only to slowly sink beneath the waves —*glug, glug!* He begins by offering some reasons you probably never thought of as to why you might wish to pursue a working knowledge of CW operation. Then, you're shown a simple and straightforward way of learning the code on a step-by-step basis. It looked like a good approach to us, and certainly worth a try, even for the discouraged.

Then, the book shows how to take that basic knowledge and, if desired, cultivate it for higher speed operating. Proper operating practices are also explained, and a listing of popular operating Q-codes and other abbreviations are included. We noted that Pete didn't have the heart to include the bane of all new CW operators—having the other station send you the dreaded "QLF" signal. It's an unofficial ham Q-code that roughly means, "Quit sending with your left foot, now try sending with the right foot!"

In the rear of the book, there's a large bibliography of articles about CW that have appeared in various ham and other publications over the years. There's also a very comprehensive index to the book, itself.

Pete's done a good job, and we liked his book a lot. This book is highly recommended to those interested in learning CW, whether as a personal challenge, or for a ham ticket requiring CW, or in order to monitor CW stations, or just for the satisfaction and excitement of mastering what is essentially another language—the universal language of radio communications. At worst, it's still an easier language to learn than Ukrainian or Tamil. Think about it.

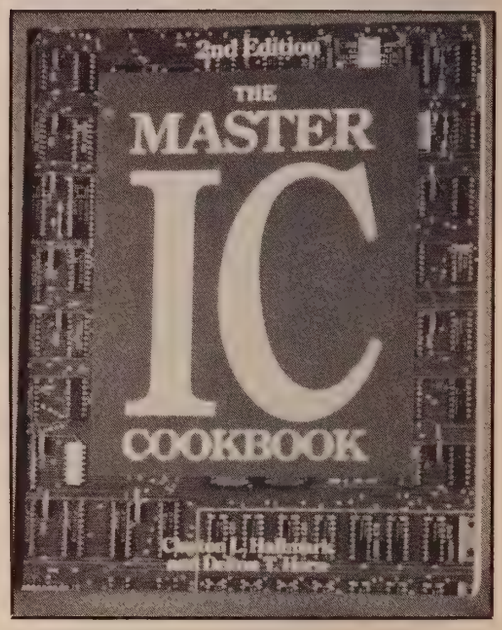
Morse Code: The Essential Language, by Pete Carron, Jr., W3DKV, is available from the American Radio Relay League, Inc., 225 Main St., Newington, CT 06111. It is $6, plus $3 postage.

Chip On Your Shoulder?

The Master IC Handbook, 2nd Edition, by Clayton L. Hallmark and Delton T. Horn could save you a lot of time. This is especially true if you happen to be inclined to spend a lot of time digging through notes, scraps of paper, books, magazines, computer files, and other references to locate the specifications for various integrated circuits.

Now, Hallmark and Horn have revised and updated this electronics classic. The 568-page book is a one-stop source of design data on hundreds of chips from a wide spectrum of manufacturers.

This comprehensive volume now contains sections on TTL and CMOS products, memories, operational amplifiers, audio



amplifiers, RF amplifiers, and other linear devices. Information is also provided on other IC essentials, including pinouts, block diagrams, temperature ranges, truth tables, schematics, voltage and current ratings, speed of operation, noise immunity, frequency response, etc.

Whether you're a professional tech, a designer, engineer, experimenter, or a technically inclined hobbyist, you'll find that there's a massive amount of reference data assembled here in one concise volume for your convenient use. All chips are indexed by type and number at the rear of the book.

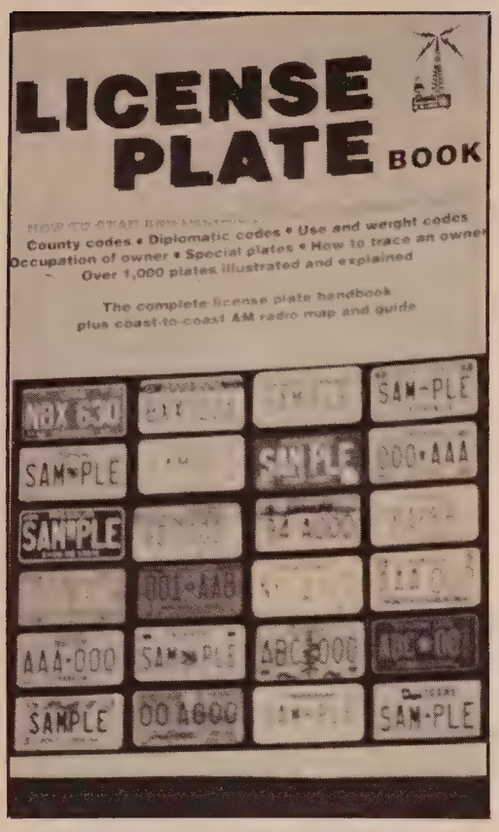
This volume is $22.95 from TAB Books, Blue Ridge Summit, PA 17294-0850. The book number is 3550.

Home Plate

You probably don't realize how much information a vehicle's license plate provides at just a glance. Well, obviously it tells the state or province where the vehicle hails from. And you might be able to tell if the vehicle's owner is a ham operator because the plate contains ham radio call letters. But such things are only the most basic samples of what information vehicle plates reveal, and they are quite apparent to even the most casual observer.

In truth, the license plate of a vehicle (car, truck, van, bus, etc.) can tell a whole story to the savvy observer who knows how to read the many codes and other not-so-obvious information on a plate. This is a form of confidential information traditionally known only to law enforcement officers, motor vehicle agencies, and sharp private investigators.

In 1978, Tom Murray created a sensation


LICENSE PLATE BOOK
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The complete license plate handbook
plus coast-to-coast AM radio map and guide

when he put together his first *License Plate Code Book*, with the first listing some of this coding information. Tom Murray has now superseded the most recent (1985, 64-page) edition with the 1991 Edition of the 128-page fully-illustrated *License Plate Book*. This enlarged book reflects all of the many changes that have gone into effect during the past few years, plus new codes, and lots of new information that Tom Murray has been able to learn.

The book covers U.S. federal agency plate codes, codes on plates issued by the U.S. Dept. of State to foreign diplomats in the USA, all 50 state codes, all Canadian province codes. More than 1,000 regular and special plates are illustrated and explained, with information on their colors.

State-by-state, and province-by-province listings permit you to look up codings used on regular and special plates to decipher any hidden codings and meanings present. Depending on the state/province where a vehicle is registered, you might be able to look up such things as which county the vehicle is from, the weight/age of the vehicle, if there are restrictions on the vehicle's use, if it's rented, if it's been repossessed, if it's a loaner, if it's an unmarked state or municipal vehicle, if it's owned by a news reporter, if the owner had been a prisoner of war, maybe even the owner's occupation or last initial, and much more!

Insofar as the diplomatic plates are concerned, the confidential code lets the FBI and other agencies concerned with national security keep track of which nation's diplomats are driving where. Some nations' officials are restricted as to where they may drive.

There are 52 full-color photos of American and Canadian license plates shown on the front/back covers of this book. The text also contains information on how to "read" license plates on passenger cars, on trucks, on trailers, on interstate vehicles, on vehicles registered to handicapped persons. There is information on manufacturing license plates, and how they are reflectorized. Learn how to collect license plates (a fascinating hobby with many avid members). The author discusses special plates, and provides some interesting general background information on license plates.

We also liked that there are listings (call letters, location, frequency) of a couple of the more powerful AM broadcasters in each state and province so that users of the book passing through those areas can easily tune in on local programming. This book is made up handy 6X9 size for keeping in a vehicle's glove box.

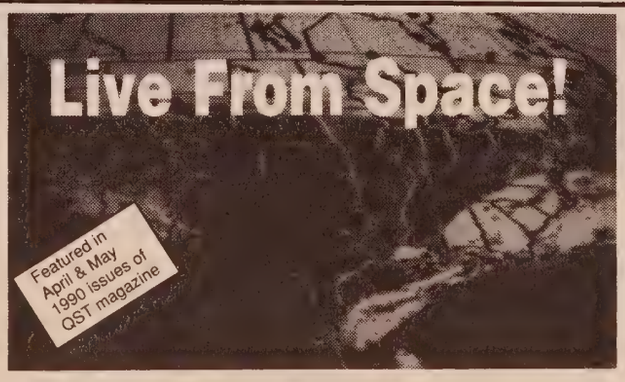
We figure this handy reference guide will be useful (and/or just interesting) to all motorists, invaluable to media people, researchers and investigators of all types, as well as law enforcement personnel. If that car following you has US Government plates, now you can quickly tell if it's EPA following you for too much tailpipe smoke, or maybe it's the FBI for—well, only you know for sure!

The all new 128-page edition of Tom Murray's *License Plate Book* is $11.95, plus $3.50 for UPS shipping (sent by First Class Mail to Canada, AK, HI, VI, GU, PR, APO, and FPO addresses). Residents of New York State, please add 90 cents sales tax. Order from CRB Research Books, Inc., P.O. Box 56, Commack, NY 11725.

In Addition . . .

Worldwide Aeronautical Communications Frequency Directory is a 42-page publication covering the 2 to 26 MHz range. There is a brief discussion of types of aero traffic; a listing of frequencies used by airlines, Volmets, military, NASA, and some Customs Service channels. There is a listing of ID's and terms a monitor is likely to encounter on aero frequencies. This handy guide is $6.95 ($1 shipping) and is published by Universal Radio, 1280 Drive, Reynoldsburg, OH 43068. It is also carried by many *POP'COMM* advertisers.

The Era of DBS is a fascinating new VHS videotape that explores the latest developments in satellite communications, Direct Broadcasting Satellites. The 56-minute tape offers an in-depth look at the history, technology, and current state of DBS around the globe. This information-packed videotape turns out to be interesting and easy to understand, and is therefore well suited to explaining DBS to individuals interested in satellites. It is suitable as a training tool in the broadcast, satellite, and communications industries. We were surprised to learn (and see) that there are already DBS systems operating in Australia, Jaman, and Europe. Using only a 1 or 2 ft.-sq. antenna on the roof, DBS offers more than 100 TV channels. This excellent videotape was produced by Shelburne Films, 54545 SR 681, Reedsville, OH 45772. Check with them for further information.



Imagine a high-resolution, high-tech scan converter that does it all. Plug it into your receiver earphone jack and decode all APT modes — WEFAX, GOES-TAP, polar satellites and HF Marine fax. Capture, enhance, save and print in gray-scale weather facsimile using your IBM-compatible computer. Achieve professional results — often surpassing the capabilities of local TV weather reporting. Latest technology for optimal noise rejection, self-test mode, advanced menu-driven software and help windows assure easy operation.

Factory-assembled and tested — $370, includes software and user's guide.

Easy-to-assemble kit — $240 includes software and user's guide.

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CIRCLE 127 ON READER SERVICE CARD

POP'COMM Reviews:

G & G Electronics' "SWL" Interface And "Morse Coach" Program For Commodore Computers

In past issues, we have reviewed several computer interface systems and programs for the shortwave listener designed for IBM-compatible computers. Although this format is dominant in the market, we cannot forget the rather large number of Commodore C64 and C128 computers in use by shortwave listeners and hams around the world. The Commodore systems are relatively compact, inexpensive, and still meet the needs of many of our readers. This review covers two of the more popular systems marketed to the shortwave listener by G & G Electronics of Gaithersburg, Maryland.

"SWL" Interface

The SWL is a complete radio interface demodulator/terminal cartridge with terminal software resident in ROM (Read Only Memory) for receiving radioteletype (RTTY) and Morse code. The package contains the SWL cartridge, a SWL demo audio cassette tape, shielded interface cable, and a "easy reading" 32-page instruction manual.

The SWL interface provides "receive only" capability on RTTY (Baudot and ASCII) and Morse code. The RTTY section of the interface contains a two-tone demodulator designed to receive both commercial and ham RTTY signals at all commonly used shifts and speeds. The Morse code section is designed to receive Morse signals up to a speed of 99 WPM. Installation is quite easy; with the computer off, plug the SWL cartridge into the expansion port of the C64 or C128 and then connect your receiver's audio to the speaker/earphone jack on the SWL cartridge.

The "SWL" interface allows the user to explore the world of RTTY and Morse code in a very cost-effective manner with decent performance. Terminal control is exemplary and demodulator performance is quite good for the price.

"Morse Coach" Program

Want to learn Morse code? The Morse Coach cartridge adds a complete computer controlled Morse teaching program to the C64 or C128 system. The cartridge is simply plugged into the computer's expansion port as with the SWL interface.

This automated Morse learning system is divided into three programs: alphabet, practice, and speed test. The Alphabet program assumes no prior knowledge of Morse code. The computer sends individual letters and numbers in an audio tone at a user- selectable rate of 10 to 99 WPM. The user must type the response on the keyboard. The Practice and Speed Test programs within the Morse Coach are similar in that each send a predetermined number of 5 character groups and await a typed response. The Speed Test program, however, flunks the "student" when a 15% error rate is reached.

The Morse Coach is a fun method of learning Morse code. Although ham radio now has a "no-code" license, one is still required to master Morse to attain the higher levels of licensing. This may be just the "ticket" to attain your goal!

Please contact G & G Electronics, 8524 Dakota Drive, Gaithersburg, MD 20877 for more information. The price of the SWL interface cartridge and the Morse Coach cartridge is $69.95 and $49.95 respectively.

Reviewed by POP'COMM staff.

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NEW PRODUCTS

REVIEW OF NEW AND INTERESTING PRODUCTS

New Scanner

An all-new scanner dubbed the SR-001 All Wave Receiver is now available from Shinwa Communications. The unit has 200 memory channels (10 bands of 20 channels each), and covers the frequency range from 25 through 1,000 MHz, AM, NFM, and WFM. Frequency steps are at 5, 10, 12.5, 20, 50 and 100 kHz and are automatically selected (or may be manually chosen by the operator).

There are two antenna inputs, one accepting a BNC-type connector, the other accepting an N-type connector.

Maximum scanning speed is 35 c.p.s. An interesting feature is that it comes with an infrared remote control head that permits frequency and mode selection from more than twenty feet away from the receiver. An RS-232C port allows for optional system expansion. This scanner also has a built-in timer.

Operation is designed for 13.6 VDC, with desktop operation from an AC adaptor (supplied). A lithium battery supplies the power for memory retention.

For more information on the SR-001 All Wave Receiver, contact Shinwa Communications of America, PO Box 26407, Oklahoma City, OK 73126, or circle 102 on our Readers' Service.

DX'ers World Map Clock

MFJ Enterprises, Inc. announces the release of the MFJ-110 DX'ers World Map Clock.

This MFJ DX'ers World Map Clock not only shows the time and date at any QTH in the world—it also lets you see the place where your contact is.

MFJ-110 DX'ers World Map Clock also shows day of week, month, date and year.

Easy-to-use push buttons let you instantly move the display to a QTH in every time zone. Recall feature instantly moves the display back to local time. Also features an alarm. Tan map on gold background with black border. Measures 5¼" x 3¼" x ⅔".

It comes with MFJ's one year unconditional guarantee.

For more information or to order contact any MFJ dealer or MFJ Enterprises, Inc., PO Box 494, Mississippi State, MS 39762. You can get more info if you circle 103 on our Readers' Service.

ART-1: A complete interface system for send and receive on CW, RTTY (Baudot & ASCII) and AMTOR, for use with the Commodore 64/128 computer. Operating program on disk included. **$199.00**

AIR-1: A complete interface system for send and receive on CW, RTTY (Baudot & ASCII) and AMTOR, for use with Commodore VIC-20. Operating program in ROM. **$99.95**

SWL: A receive only cartridge for CW, RTTY (Baudot & ASCII) for use with Commodore 64/128. Operating program in ROM. **$69.95**

AIRDISK: An AIR-1 type operating program for use with your interface hardware. Both VIC-20 and C64/128 programs on one disk. **$39.95**

AIR-ROM: Cartridge version of AIRDISK for C64/128 only. **$59.95**

MORSE COACH: A complete teaching and testing program for learning the Morse code in a cartridge.
For C64 or C128. **$49.95**
VEC SPECIAL **$39.95**

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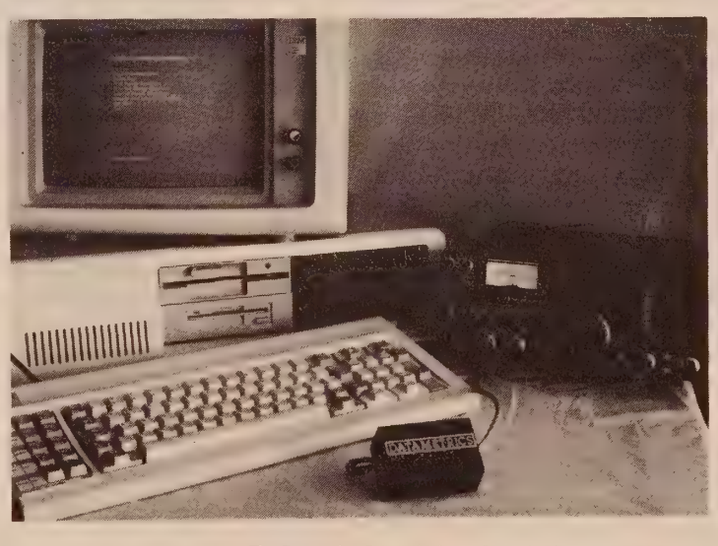
(301) 258-7373

CIRCLE 151 ON READER SERVICE CARD

Computer Aided Scanning
a new dimension in communications from Datametrics



Now you can enhance your ICOM communications receiver through a powerful computer controlled system by Datametrics, the leader in Computer Aided Scanning. The system is as significant as the digital scanner was five years ago and is changing the way people think about radio communications.

- The Datametrics Communications Manager provides computer control over the ICOM R7000 or R71A receiver.
- Powerful menu driven software includes full monitoring display, digital spectrum analyzer and system editor.
- Innovative hardware design requires no internal connections.
- Comprehensive manual includes step by step instructions, screen displays, and reference information.
- Extends ICOM capabilites including autolog recording facilities, 1000 channel capacity per file, and much more.
- Overcomes ICOM limitations such as ineffective scan delay.

Datametrics, Inc

R7000 system $349
R71A system $349
Manual and demo disk $15

Requires ICOM receiver and IBM PC with 512K and serial port. The R71A version also requires an ICOM UX-14.

Send check or money order to Datametrics, Inc, 2575 South Bayshore Dr, Suite 8A, Coconut Grove, Fl 33133. 30 return priviledges apply.

CIRCLE 152 ON READER SERVICE CARD

AM Revival: Hams Do "Classic Radio!"

A Golden Age Revival: Vintage AM Stations On The Ham Bands!

BY PAUL S. COURSON, WA3VJB

There's an Amateur Radio specialty bringing back the classic days of radio, when families would gather around the big console and listen to hours of storytelling from stations sometimes far, far away. While commercial broadcasting has left the Golden Age behind, hundreds of hams are keeping some of the best parts alive!

Amplitude Modulation (AM), with its noise-quieting carrier and open-sounding audio, provides a warm and inviting mode of communicating on the shortwave ham bands. Gathering points called "AM Windows," spaced cooperatively throughout the Amateur segments (see box) offer a place to pull up a chair, and sit and visit for a while.

One cold, winter night in the northeast last year, for example, a station was being heard from south Texas, putting strong signals all the way into New England, where other hams were probably hoping their tube-type "hollow state" sets would help heat up their radio rooms. The Texas station reported he had warm weather by contrast. And as he spoke, through his open window a distant train could be heard rolling through the night as airwaves carried the sound away.

That kind of vivid audio quality tickles the imagination, often soothing listeners made comfortable by fidelity so natural it's like having the distant friend there in the room.

Some AM enthusiasts strive for broadcast-quality audio, including Bob, W2ZM of Penn Yan, NY, the founder of a local commercial AM station, who brings home the same refinement shown at his "other" station.

The old days of personality radio also come through. Ed, WA3PUN of Harrisburg, PA reflects on the Golden Age by staging some lighthearted skits of radio show characters. His impressions are a hit, and he even lampoons some modern figures with impersonations of Henry Kissinger and others.

"I used to monitor the AM-ers, and I was hooked!" says Jim, now WA2MER of Vernon, NJ. He found a 1960's-vintage brand of transmitter called a Johnson Valiant, to pair with his contemporary, high performance SWL receiver, an NRD-525. On the other hand, Don, K4KYV of Woodlawn, TN says he's got a "heavy metal station," using massive transformers and other surplus broadcast audio components assembled for a full-fidelity station he operates out of a relocated one-room schoolhouse.

Author Paul Courson, WA3VHB, at the console of his AM station near Annapolis, MD.

There are many from the high-pressure world of broadcasting, such as newscasters, disc jockeys, and station managers, found using AM on the ham bands to unwind and maybe remind themselves how fun radio can be. Milwaukee's N9IPQ, Ken, brings lively DJ banter to share from his days doing morning drive in Chicago.

In Maine, Tim, WA1HLR represents the "morning zoo" personality found on so many broadcast stations. His irreverence, sometimes off-color jokes, and good-natured kidding around appeal to many as he transmits from "TimTron Mountain," a tract of land he purchased while chief engineer at a local AM/FM combo.

Tim is not only credited openly by many AM-ers as having been the force motivating them to join the hobby, he also is well-known for his wide experience with the older gear, that has proved crucial to scores of people trying to refine and troubleshoot their own stations.

Besides those with links to broadcasting, AM seems to attract a broad variety of people whose life experiences are shared during relaxed, lengthy on-air dialogues that could be described as a "radio roundtable" among sometimes as many as eight to ten folks.

Ken, W5NKT of Minog, Wisconsin is a retired aerospace engineer, who also offers stories about his Harley Davidsons, his radio restoration projects, and his parrots which can be heard sharing some of their 300+ word vocabulary!

You may also find Ed, KO3L of Pittsburgh, the owner and top bartender at a local tavern. His tales might have made good scripts for the TV show "Cheers!" Hams are prohibited from playing music on their communications frequencies, but you can hear an episode of "life as a rock star," from Jamie, N2IFY near Albany, NY. His high-quality audio no doubt is connected to some equipment borrowed from his band!

Then there are those who vividly remember when the Golden Age of Radio was unfolding. Pete, N1HCE of Acton, MA can be heard on AM recounting his 40 years as a Zenith radio dealer. Also in that state, George, W1GAC recalls how some 60 years ago he spent time as a kid listening to pioneer AM stations like WRKO and WBZ.

"AM seems to be best for social conversations," says Ralph, W2WME near Syracuse, NY., "because it has such a homey, friendly texture." No wonder that there are people so nice to chat with, they're tagged with names like "Ashtabula Bill," (W8VYZ, Ohio), and "Ozona Bob," (W5PYT, Texas). They can be counted on to provided great hours of stories told on the radio.

The shortwave ham bands are about the only place where antique radio collectors can use certain vintage military and communications transmitters. Mike, N4FS of Manassas, VA has been heard along the East Coast using a WWII tank radio! The station of Walt, KJ4KV in nearby Arlington, is made up only of restored military radios.

There is also a second generation of hams who recall hours watching older relatives "play radio," at a time when AM was the predominant mode in Amateur service. Bob, KF8IK of Port Huron, MI used to be the "keeper of the log" for his late father, then W8MNQ. Bob has now collected the same models of receivers and transmitters used back then, and has built a replica of Dad's old station.

Most people would agree that there is something majestic about a 1950's Cadillac you might see driving by. Most would also point out that such a large, old-fashioned car would not be a good choice for routine transportation. The same sort of philosophy applies for AM.

"I find it a real treat to be on AM," says Paul, W3VVS of North Hills, PA who uses the familiar and natural sounding mode to keep in touch with his son, Tom, WA3KLR in Quakertown, PA.

For primary communications, however, most hams are using Single Sideband (SSB), which has a more piercing audio quality that can enhance readability under poor conditions. Some people are finding the modern, microprocessor-based radios very difficult to experiment with, and are reluctant to even perform their own repairs. On those terms, older AM gear can help keep operators technically competent, much like the ease with which a vintage car can be lovingingly worked on by the shade-tree mechanic!

Many of the Amateur publications have carried editorials lamenting the rise of what's called the "appliance operator," who has little technical skill and merely plugs in a set to use as if pushing buttons on a microwave oven. There has also been a sense of loss noted as radio contacts come and go with no real depth to the conversation.

People are finding that by using AM, they're inclined to stop and smell the roses, spending a little extra time getting to know those on the other end, and building friendships over repeated contacts in that special place some are calling the "AM Radio Network."

One newcomer, Jay, WB8SQJ in Grand Rapids, MI was heard praising this new thing he'd found, saying it's "personalized radio," where you're likely to meet more than once with someone. Even hams with the latest equipment are pushing the button marked *AM*, for an occasional pleasant ride along part of radio's heritage.

Amateur radio is lucky to have such a variety of good people, in a hobby where operators are ready to offer disaster communications and other public service. Its sense of history is enhanced, and its future assured, by the loyalty of AM-ers staying in touch with part of radio's roots. ■

AM Frequencies

160 Meter Band:	Look for AM activity nightly at regional distances around 1885, 1895, 1950, 1990 and 1995 kHz.
75 Meter Band:	Somewhat longer range than 160 meters, activity is heard from late-afternoon to pre-sunrise between 3870 and 3890 kHz.
40 Meter Band:	Regional distance daytime, long distance nighttime. Most activity between 3870 and 3890 kHz.
20 Meter Band:	Long-distance daytime through evening. Sometimes only one side heard because of signal paths. Check aournd 14,285 and 14.295 MHz.
17 Meter Band:	Occasional activity on 18.150.
15 Meter Band:	Quite active during band openings, around 21.385.
12 Meter Band:	Occasional activity on 24.985.
10 Meter Band:	29.000 MHz to 29.200, and between 28.305 and 28.325.

Note: East Coast AM Swap Net, Thursdays 7:30 Eastern, 3.885. West Coast AM Net, nightly 5:30 pm Pacific, 14.286.

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BY GORDON WEST, WB6NOA

Precise Position Fixes

Good emergency communicators always know their exact position at any moment. Out on the highways, the emergency responder has cross streets and mile markers; but in the wilderness, or out on a lake, river, or ocean, position-fixes become more of a challenge.

Triangulation position-finding dates back to B.C., and provides position-fixes down to the half mile. This is why it's always important to carry a compass polaris with you for triangulating your position from prominent landmarks when you are out in the wilderness.

In the 1940's, radio direction finding by triangulation allowed mariners far offshore to calculate their position within a mile or so. RDF triangulation is still a common practice of position-finding in areas of the world that are without any other electronic NAV-aids.

In the 1960's, Loran-A equipment—a giant 20-pound receiver—could position-find near the coastlines to within a mile or so of your actual position. It was a laborious task to cycle match with Loran-A equipment, but nonetheless, it still worked.

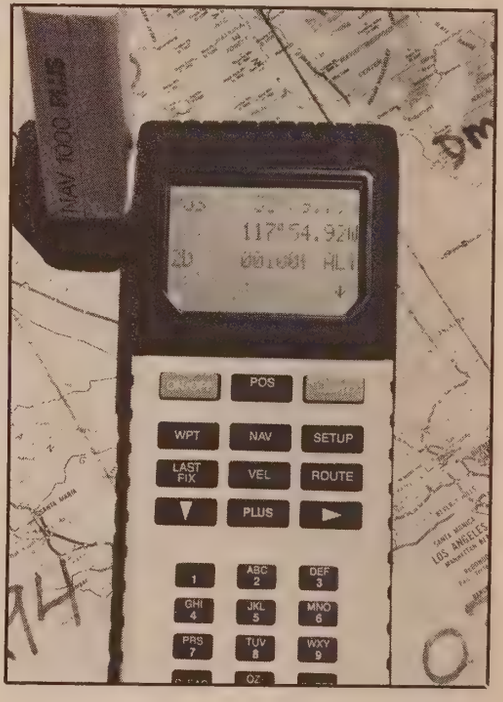
In the 1980's, position finding around the coastlines was accomplished using the more modern Loran-C. Just recently the FAA in cooperation with the U.S. Coast Guard opened up 2 additional Loran-C chains in the middle United States, so there is now complete U.S. Loran-C coverage to a little receiver that may only weigh a pound or so at most. There are even portable Loran-C receivers from Ray Jefferson (Philadelphia, Pennsylvania; 215/487-2800) and Voyager (Chatsworth, California; 818/998-1216). The Loran-C equipment will position-find anywhere in the United States, and out to 200 miles at sea, within one-quarter mile of your exact position. Typically, Loran position-finding capabilities are better than a couple of hundred yards, and repeatability—the capability to get back to a pre-memorized spot on land or sea—is usually better than an incredible 50 feet! Loran equipment sells from $250 to $1,000.

But Loran readouts in areas of rolling hills and forests may sometimes be off as much as a mile. This is caused by ASF—applied secondary factor. As the Loran signals are coming in from several synchronized transmitters, some incoming low-frequency (100 kHz) signal pulses are abnormally delayed by their route over tall mountains and dense forest regions. Although this delay may only be a microsecond or so, it's enough to throw off your position by several hundred yards. The more expensive Loran receivers attempt to compensate this error with ASF corrections, but you should always re-calibrate your Loran with an exact geodetic position fix before beginning an emergency exercise in a new search area.

The beauty of Loran is its repeatability. If you are searching an area for several days at a time, you can memorize "waypoints" along the way, and be able to get back to those waypoints within 50 feet. The readout

Portable Loran-C unit on left, and portable GPS unit on right as a size comparison.

"Gordo" comparing a Loran with the portable GPS unit.



The Magellan goes on a camping trip with great success!

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Once again JRC breaks new ground in shortwave receiver design. The new NRD-535 has all the features SWLs and amateurs have been waiting for. General coverage from 0.1 to 30 MHz in AM, USB, LSB, CW, RTTY, FAX and Narrow FM modes. Advanced ECSS operation for phase-lock AM reception. Variable bandwidth control (BWC). Tuning accuracy to 1 Hz possible with direct digital synthesis. 200 memory channels with scan and sweep operation. Triple Superheterodyne receiving system. Superb sensitivity, selectivity and image rejection. Dual-width noise blanker eliminates impulse noise. Squelch, RF Gain, Attenuator, AGC and Tone controls. Optional RTTY demodulator available. 24 hour clock/timer. Easy to read vacuum fluorescent display with digital S-meter. AC and DC operation. Plus the most comprehensive computer interface found on any radio to date. Call or write today for a full color brochure, price list and dealer information.

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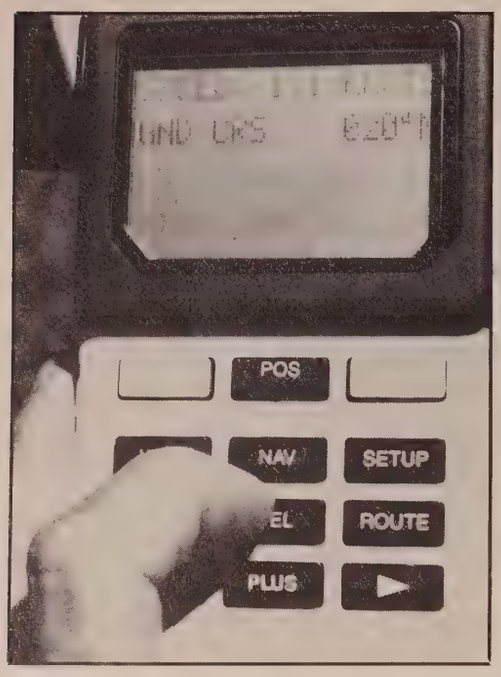
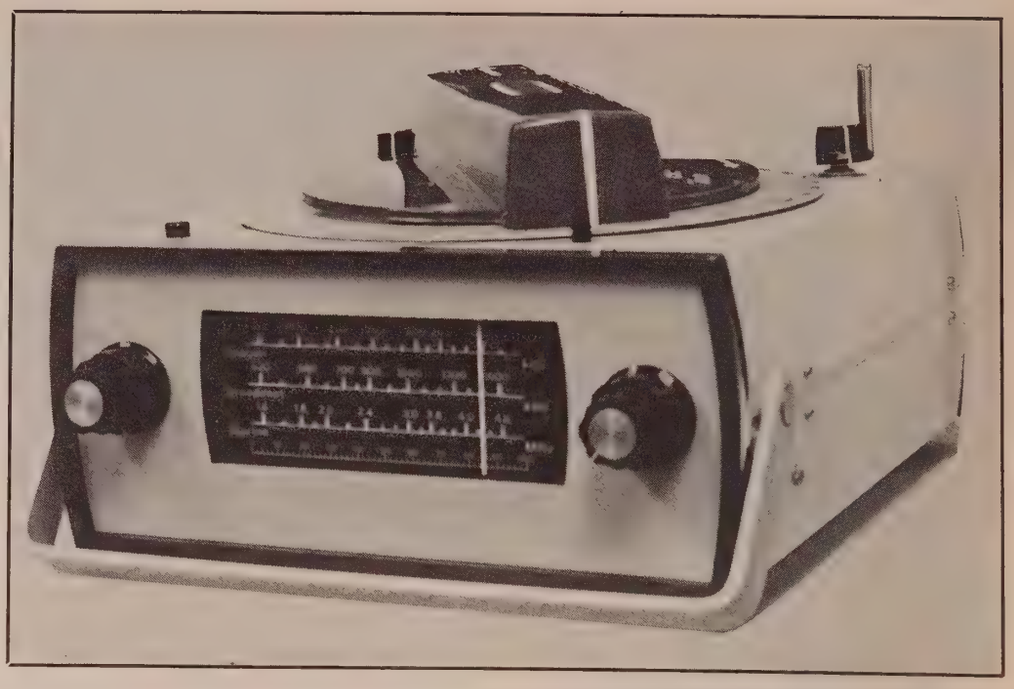


Magellan Nav 1000 Plus GPS was quick to track us at 020° magnetic, 1.1 knots in the harbor.



An old RDP may still be used for local position-fixes, especially when cruising in Mexico where Loran-C reception is difficult.

on your Loran will faithfully show you the magnetic direction back to your memorized waypoint, and how many miles to go, and how long it's going to take you at your present rate of travel.

The ultimate precision position indicator is the newly developed GPS system. We now have 24-hour-a-day coverage from 16 out of a planned 21 orbiting satellite constellation. Three spare satellites will also be added to the polar orbits.

Triangulation is how GPS receivers work —the measurement of time delays from 3 or more orbiting satellites whose position is stored within your GPS receiver's almanac. If 4 or more satellites are within view (which is now possible most of the time in the United States), your GPS receiver will also resolve altitude. GPS accuracies will be better than 300 feet, and the probability of 100 foot or better accuracy occurs 75 percent of the time. In addition, since the signals are coming in from orbiting satellites, there is no problem with local terrain causing signals to be "a little off".

However, local terrain can sometimes cause GPS signals to be completely off! If you're deep in a gorge trying to receive incoming GPS signals at a riverbank, you may have to wait for enough satellites to be within "view" before your receiver begins updating its position every other second. In rare cases, you might need to climb out of the narrow gorge to get a better shot at the sky in order to position-find.

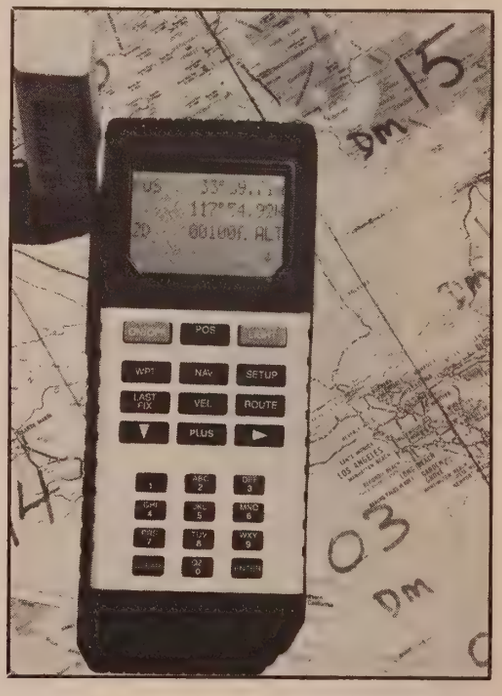
Portable GPS receivers for under $1,800 are available from the following manufacturers: Magellan, Monrovia, California - 818/358-2363; Garmin ProNav, Lenexa, Kansas - 913/599-2103, and Trimble, Sunnyvale, California - 408/730-2900.

Each of these portable GPS receivers can operate continuously for up to 8 hours on internal batteries. For extended search and rescue missions, shut the unit down between position fixes and you could go for up to a week of position-finding every couple of hours or so. Each set reads out latitude and longitude in hours, minutes, and fractions of a minute (not seconds), and will also store waypoints, and also read out your velocity and your magnetic direction of travel. Altitude is also available if 4 or more satellites are in view.

It takes these portable receivers about 2 minutes to lock onto the orbiting satellites. Occasionally, the unit may read "collecting almanac", a 15-minute chore accomplished once every 6 months or so to bring its internal computer up to date on what's happening aloft. Once the almanac has been collected, it usually remains valid for many months. This is why it's a good idea to regularly run your GPS receiver before a major exercise to insure there is no 15-minute wait for almanac collection during the actual mission.

The GPS portable receivers have a built-

For fixed use, the portable GPS slides into the mounting bracket.



A GPS set works just as well on land for position-finding as it does on the water.

in antenna which picks up the satellite signals quite nicely at 1,500 MHz. Make sure the antenna is always in the clear in order to maximize satellite reception. If everyone is standing around the antenna, it could block incoming signals. Remote antenna systems are also available in case you wish to use the unit in a vehicle or inside an airplane or helicopter.

About the only thing that GPS does not have that Loran does have is precise repeatability. With the portable Loran set, you could get back to your campsite within a distance to toss a rock at it. With a GPS receiver, your repeatability is the same as unknown position availability, and that is within a 300-foot circle 95 percent of the time. It gets you back close, but not quite as close as with a less expensive Loran set.

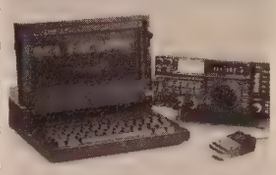
Look for GPS receivers to dramatically fall in retail price soon. The technology war is presently going on among manufacturers, and I expect to see a portable GPS set without any bells or whistles for under $1,000 this December. Chances are it will probably be an imitation import from the excellent quality U.S.A. made Magellan or Trimble units, but nonetheless, GPS portables for under $1,000 is just over the horizon.

So how do you position-find in the field without signposts? If you're not switching to an electronic NAV-aid, you should. They work, and they work well in saving lives when you know your exact position to call in for a recovery. ■

ICOM™ R7000 Sweeping 1300 Channels/Min.

DELTACOMM™ 1.04 gives you a custom interface and optimized software that will not just control but will maximize the potential of your R7000. Spectrum log at speeds in excess of 1300 channels/min. while automatically generating a histogram of frequency/activity. Advanced priority channel monitoring and program control, by channel, of remote tape recorders during scanning. Here are a few (there are many more) examples of the advanced features DELTACOMM has to offer:

- Birdie log during frequency search automatically characterizes your R7000, then locks out those frequencies.
- Auto histogram and scan file creation during spectrum log.
- Scan file channel lock-out feature allows scanning around channels without removing that frequency from database.
- Resume scan and maximum monitor values unique on each channel scanned.
- Each frequency within a scan file has an area (40 characters wide) for channel information.



- Auto frequency detection and storage during search and spectrum log.
- User friendly installation program reduces need for DOS knowledge.
- Full support of serial ports COM1-COM4.
- On-screen HELP reduces need to refer to user manual.
- REQUIREMENTS: MS-DOS microcomputer with minimum 512K memory. DELTACOMM's performance is proportional to baud rate setting, style of display card and type of computer used.

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World's Most Powerful CB and Amateur Mobile Antenna*

Lockheed Corp. Test Shows *Wilson 1000* CB Antenna Has 58% More Gain Than The K40 Antenna (on channel 40).

In tests conducted by Lockheed Corporation, one of the world's largest Aerospace Companies, at their Rye Canyon Laboratory and Antenna Test Range, the Wilson 1000 was found to have 58% more power gain than the K40 Electronics Company, K40 CB Antenna. This means that the Wilson 1000 gives you 58% more gain on both transmit and receive. Now you can instantly increase your operating range by using a Wilson 1000.

***Lockheed** - California Company*
A Division of Lockheed Corporation
Burbank, California 91520

Aug. 21, 1987

Wilson Antenna Company Inc.
3 Sunset Way Unit A-10
Green Valley Commerce Center
Henderson, Nevada 89015

Subject: Comparative Gain Testing of Citizen's Band Antennas
Ref: Rye Canyon Antenna Lab File #870529

We have completed relative gain measurements of your model 1000 antenna using the K-40 antenna as the reference. The test was conducted with the antennas mounted on a 16' ground plane with a separation of greater than 300' between the transmit and test antennas. The antennas were tuned by the standard VSWR method. The results of the test are tabulated below:

FREQUENCY (MHZ)	RELATIVE GAIN (dB)	RELATIVE POWER GAIN (%)
26.965	1.30	35
27.015	1.30	35
27.065	1.45	40
27.115	1.60	45
27.165	1.50	41
27.215	1.60	45
27.265	1.75	50
27.315	1.95	57
27.365	2.00	58
27.405	2.00	58

58% MORE POWER GAIN THAN THE K40

Guaranteed To Transmit and Receive Farther Than Any Other Mobile CB Antenna or Your Money Back**

New Design

The Wilson 1000 higher gain performance is a result of new design developments that bring you the most powerful CB base loaded antenna available.

Why Wilson 1000 Performs Better

Many CB antennas lose more than 50% of the power put into them. The power is wasted as heat loss in the plastic inside the coil form and not radiated as radio waves.

We have designed a new coil form which suspends the coil in air and still retains the rigidity needed for support. This new design eliminates 95% of the dielectric losses. We feel that this new design is so unique that we have filed a patent application on it.

In addition, we use 10 Ga. silver plated wire to reduce resistive losses to a minimum.

In order to handle higher power for amateur use, we used the more efficient direct coupling method of matching, rather than the lossy capacitor coupling. With this method the Wilson 1000 will handle 3000 watts of power.

The Best You Can Buy

So far you have read about why the Wilson 1000 performs better, but it is also one of the most rugged antennas you can buy. It is made from high impact thermoplastics with ultraviolet protection. The threaded body mount and coil threads are stainless steel; the whip is tapered 17-7 ph. stainless steel. All of these reasons are why it is the best CB antenna on the market today, and we guarantee to you that it will outperform any CB antenna (K40, Formula 1, you name it) or your money back!

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CIRCLE 11 ON READER SERVICE CARD

BY GERRY L. DEXTER

CLANDESTINE COMMUNIQUE

WHAT'S NEW WITH THE CLANDESTINES

The rapidly changing political situation in so many countries creates almost monthly fluctuations in the near-parallel world of clandestine broadcasting!

The Colombian, *Radio Patria Libre*, has been off the air for some months, we've speculated that this might be a reflection of the overall diminished efforts of the Colombian guerrillas. Well, Patria Libre has returned so perhaps the absence was nothing more mysterious than equipment problems! The station is being heard keeping to its former schedule of (about) 0030 to 0115 and 1130 to 1220. These days it's operating largely on 6260, 6270 and 6280. The station is supposedly run by the National Liberation Army (ELN). No location or address has been established.

Another returnee is the FMLN's *Radio Venceremos* which, with it's sister station-*Radio Farabundo Marti*, has been missing from shortwave for quite some time. Farabundo Marti, however, is still off shortwave as far as we can tell. Venceremos is noted lately at around 0200 on 6400 or a hair below.

Yugoslavia continues in turmoil so a reminder that there is one broadcast on shortwave which concerns itself with that area and which also can be heard well in North America, but only because it comes via US shortwaver WHRI. The program is *Radio Libertas* which is produced by the Croatian Committee for Human Rights. It seeks independence for Croatia and airs Monday through Saturday at 1600 on 11790 and 21480 and on Sundays at 2100 on 13670 and 17830. The broadcast is largely in Croatian but also includes a brief English segment. Reception reports are verified from this address: 1174 Clarkson Road, Mississauga, Ontario, L5J 2W2, Canada.

Here's the current schedule for *Radio Free Afghanistan*: 0230-0330 on 9555, 15370 and 17895 and 1300-1400 on 15445, 17780, 17835 and 21510. Broadcasts are in Pashtu and Dari and air over the facilities of Radio Free Europe/Radio Liberty. One interesting note about RFE/RL: reader R.C. Watts of Kentucky wrote to the station asking for a tour since he was going to be in Munich, Germany where RFE/RL has its headquarters. He got a letter back saying RFE/RL "does not give briefings or tours to private individuals."

We've made several mentions of the anti-Beijing broadcasts of the *Voice of June 4th*, which was aired over Taiwan's government network. The Voice of June 4th has been discontinued due to lack of funds. But even before it produced its last program its time slot had been taken by a new broadcast called the *Voice of China*. So far we don't know what group is producing the Voice of China. For all we know it may be something the Taiwan government is putting together.

The *Voice of the Iraqi Opposition* continues its broadcasts and it is perhaps not too far out to speculate that this one will remain active as long as Saddam Hussein is in power. Hans Johnson, monitoring from Maryland, reports this one is quite regular around 0200 on 9570, 15600 (sometimes 15605) and 17950 (ex-17960).

Baghdad Radio seems to have reinstated several of its "anti" type broadcasts. Being aired again are the *Voice of Egypt of Arabism* at 2030-2100 on 4600 and 8350; the anti-Saudi *Holy Medina Radio* at 200-2030 on the same frequencies and *Voice of the Peninsula and Arabian Gulf* at 1630-1700 on 3980, 4600 and 8350. Unfortunately, none are opportune times for us in North America.

Radio Miami International, a planned commercial shortwave station, doesn't have its license yet so it's not on the air. But that isn't stopping it from placing time on other stations for other groups, including several anti-Castro organizations. Radio Miami International's client list includes a program called *Free Cuban Studies*, which airs on WRNO Sundays at 0200-0300 on 7355. *La Voz de Alpha 66* and the Cuban American National Foundation's *La Voz de Fun-*

(Continued on page 78)

radioVenceremos
voz oficial del Frente Farabundo Marti para la Liberación Nacional, El Salvador c a
TRANSMITE EN LA BANDA INTERNACIONAL DE LOS 40 mts. 7 mhz
DESDE MORAZAN, EL SALVADOR. C. A.

Radio Venceremos, inactive on shortwave for quite a while, has returned. Check 6400 around 0200.

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Emergency Operations Center has expanded to our new two acre facility and World Headquarters. Because of our growth, CEI is now your *one stop source* for emergency response equipment. When you have a command, control or communications need, essential emergency supplies can be rushed to you by CEI. As always, for over twenty two years, we're ready, willing and able to help.

Our RELM two-way radio transceivers were especially created for government agencies. When you need to talk to police, fire, ambulance, or state, federal and international response forces, RELM transceivers may be quickly programmed for up to 48 frequencies. Listed below, are some of our most asked about transceivers. For additional assistance, call CEI at 313-996-8888.

NEW! RELM® RSP500-A

List price $465.00/**CE price $319.95/SPECIAL**
20 Channel • 5 Watt • Handheld Transceiver
Frequency range: 148-174 MHz. continuous coverage. Will also work 134-148 MHz. with reduced performance.
The *RELM* RSP500B-A is our most popular programmable 5 watt, 20 channel handheld transceiver. You can scan 20 channels at up to 40 channels per second. It includes CTCSS tone and digital coded squelch. Snap on batteries give you plenty of power. Additional features such as time-out timer, busy-channel lockout, cloning, plug-in programming and IBM PC compatability are standard. It is F.C.C. type accepted for data transmission and D.O.C. approved. We recommend also ordering the **BC45** rapid charge 1½ hour desk battery charger for $99.95, a deluxe leather case **LC45** for $48.95 and an external speaker microphone with clip **SM45** for $59.95. Since this radio is programmed with an external programmer, be sure to also order one **PM45** at $74.95 for your radio system.

NEW! RELM® UC102/UC202

List price $128.33/**CE price $79.95/SPECIAL**
CEI understands that all agencies want excellent communications capability, but most departments are strapped for funds. To help, CEI now offers a special package deal on the RELM UC102 one watt transceiver. You get a UC102 handheld transceiver on 154.5700 MHz., flexible antenna, battery charger and battery pack for only $79.95. If you want even more power, order the RELM **UC202** two watt transceiver for $114.95.

NEW! RELM® RH256NB-A

List price $449.95/**CE price $299.95/SPECIAL**
16 Channel • 25 Watt Transceiver • Priority Time-out timer • Off Hook Priority Channel
The *RELM* RH256NB is the updated version of the popular RELM RH256B sixteen-channel VHF land mobile transceiver. The radio technician maintaining your radio system can store up to 16 frequencies without an external programming tool. All radios come with CTCSS tone and scanning capabilities. This transceiver even has a priority function. Be sure to order one set of programming instructions, part # **PI256N** for $10.00 and a service manual, part # **SMRH256N** for $24.95 for the RH256NB. A 60 Watt VHF 150-162 MHz. version called the **RH606B** is available for $429.95. A UHF 15 watt, 16 channel similar version of this radio called the **LMU15B-A** is also available and covers 450-482 MHz. for only $339.95. An external programming unit **SPM2** for $49.95 is needed for programming the LMU15B UHF transceiver.

NEW! RELM® LMV2548B-A

List price $423.33/**CE price $289.95/SPECIAL**
48 Channel • 25 Watt Transceiver • Priority
RELM's new LMV2548B gives you up to 48 channels which can be organized into 4 separate scan areas for convenient grouping of channels and improved communications efficiency. With an external programmer, your radio technician can reprogram this radio in minutes with the **PM100A** programmer for $99.95 without even opening the transceiver. A similar 16 channel, 60 watt unit called the **RMV60B** is available for $489.95. A low band version called the **RML60A** for 30-43.000 MHz. or the **RML60B** for 37-50.000 MHz. is also available for $489.95.

RELM® Programming Tools

If you are the dealer or radio technician maintaining your own radio system, you **must** order a programming tool to activate various transceivers. The **PCKIT010** for $149.95 is designed to program almost all RELM radios by interconnecting between a MS/DOS PC and the radio. The **PM100A** for $99.95 is designed to externally program the RMV60B, RML60A, RML60B and LMV2548 radios. The **SPM2** for $49.95 is for the LMV25B and LMU15B transceivers. The **RMP1** for $49.95 is for the RMU45B transceiver. *Programmers must be used with caution and only by qualified personnel because incorrect programming can cause severe interference and disruption to operating communications systems.*

★★★ *Uniden CB Radios* ★★★

The *Uniden* line of Citizens Band Radio transceivers is designed to give you emergency communications at a reasonable price. Uniden CB radios are so reliable they have a two year limited warranty.

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WASHINGTON-A *Uniden* 40 ch. SSB CB base...$209.95
PC122-A3 *Uniden* 40 channel SSB CB mobile...$113.95
PC66A-A *Uniden* 40 channel CB Mobile.....$78.95
PRO510XL-A3 *Uniden* 40 channel CB Mobile.....$34.95
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PRO538W-A *Uniden* 40 ch. weather CB Mobile...$78.95
PRO640E-A3 *Uniden* 40 ch. SSB CB mobile.....$133.95
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RD9XL-A3 *Uniden* "micro" size radar detector...$107.95
RD25-A *Uniden* visor mount radar detector.....$54.95

Bearcat® 200XLT-A

List price $509.95/**CE price $239.95/SPECIAL**
12-Band, 200 Channel • 800 MHz. Handheld Search • Limit • Hold • Priority • Lockout
Frequency range: 29-54, 118-174, 406-512, 806-956 MHz. Excludes 823.9875-849.0125 and 868.9875-894.0125 MHz.
The *Bearcat* 200XLT sets a new standard for handheld scanners in performance and dependability. This full featured unit has 200 programmable channels with 10 scanning banks and 12 band coverage. If you want a very similar model without the 800 MHz. band and 100 channels, order the **BC 100XLT-A3** for only $179.95. Includes antenna, carrying case with belt loop, ni-cad battery pack, AC adapter and earphone. Order your scanner now.

Bearcat® 800XLT-A

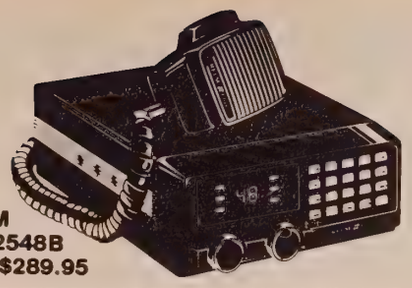
List price $549.95/**CE price $239.95/SPECIAL**
12-Band, 40 Channel • No-crystal scanner Priority control • Search/Scan • AC/DC
Bands: 29-54, 118-174, 406-512, 806-912 MHz.
Now...nothing excluded in the 806-912 MHz band.
The Uniden 800XLT receives 40 channels in two banks. Scans 15 channels per second. Size 9¼" x 4½" x 12½." If you do not need the 800 MHz. band, a similar model called the **BC 210XLT-A** is available for $178.95.

NEW! Uniden® MR8100-A

Call 313-996-8888 for special CEI pricing
12-Band, 100 Channel • Surveillance scanner
Bands: 29-54, 116-174, 406-512, 806-956 MHz.
The *Uniden* MR8100 surveillance scanner is different from all other scanners. Originally designed for intelligence agencies, fire departments and public safety use, this scanner offers a breakthrough of new and enhanced features. Scan speed is almost 100 channels per second. You get four digit readout past the decimal point. Complete coverage of 800 MHz. band when programmed with a personal computer. Alphanumeric designation of channels, separate speaker, backlit LCD display and more. To activate the many unique features of the Uniden MR8100 a computer interface program is available for $19.95. Due to manufacturers' territorial restrictions, the MR8100 is not available for *direct* shipment from CEI to CA, OR, WA, NV, ID or UT.

NEW! Ranger® RCI2950-A3

List price $549.95/**CE price $259.95/SPECIAL**
10 Meter Mobile Transceiver • Digital VFO Full Band Coverage • All-Mode Operation Backlit liquid crystal display • Repeater Splits RIT • 10 Programmable Memory Positions
Frequency Coverage: 28.0000 MHz. to 29.6999 MHz.
The *Ranger* RCI2950 Mobile 10 Meter Transceiver has everything you need for amateur radio communications. The RF power control feature in the RCI2950 allows you to adjust the RF output power continuously from 1 watt through a full 25 watts output on USB, LSB and CW modes. You get a noise blanker, roger beep, PA mode, mike gain, digital VFO, built-in S/RF/MOD/SWR meter. Frequency selections may be made from a switch on the microphone or the front panel. The RCI2950 gives you AM, FM, USB, LSB or CW operation. For technical info, call Ranger at 619-259-0287.



RELM LMV2548B Only $289.95

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TELEPHONES ENROUTE

BY TOM KNEITEL, K2AES

WHAT'S HAPPENING WITH CELLULAR, MARINE & MOBILE PHONES

From the mail arriving here, it seems that a number of cellular systems are starting to update and upgrade their facilities, for instance, by installing Ericsson/GE switching systems. Such system upgrades are the early stages in preparing for eventual implementation of digital cellular service when it becomes a reality.

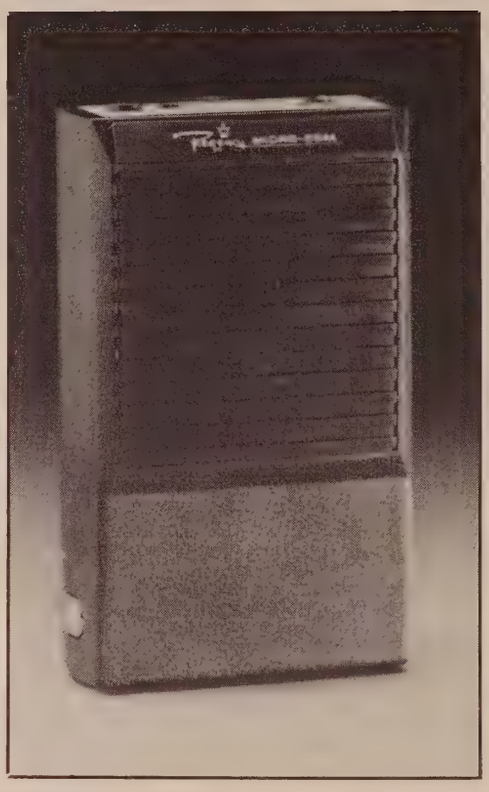
Some changes that present analog cellular users may experience right away may include increased system capacity, enhanced voice quality, a wider coverage area, improved clarity, and the use of more cell sites.

A number of readers who have learned that their local cellular system is about to embark on such an upgrade have written to us with concern, asking if their equipment will still work with the new facilities.

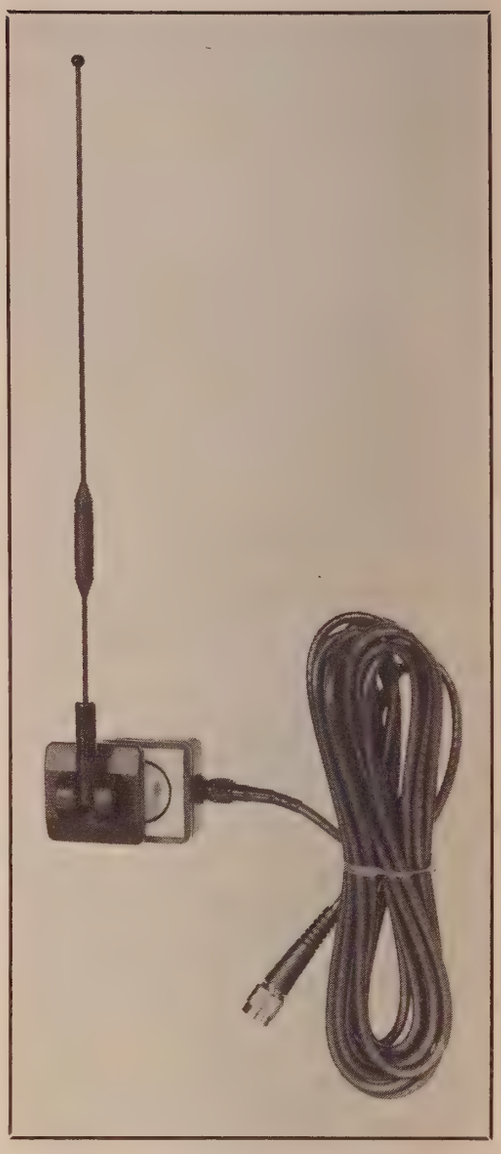
For the most part, existing cellulars should work fine. However, several units may require an equipment upgrade in order to operate effectively in systems upgraded as described above. Persons whose local cellular company is in the process of upgrading, or who do a lot of roaming, should check with the customer service department of their cellular company if they have one of the following phones: GE Star, E.F. Johnson, Western Union, NEC M-1000, NEC M-3500, NEC-5000, Novel 8300, Novatel 8301, Walker, Harris, Uniden CP-900, Uniden CP-1000, Uniden CP-1100, Uniden CP-1200, Uniden CP-2000, Uniden CP-3000, and Motorola Dyna-Tac.

Bell Atlantic Mobile Systems in the Philadelphia area, and Metro One in the New York City area, are just two of the companies already operating with these so-called "digital ready" switching facilities.

At such time in the future as digital cellular phones become a reality, digital ready cellular systems will be able to handle calls from the new digital phones as well as from presently existing analog phones.



The Micro-Com pager does a lot, yet it's small.



No more whistling coils when they're encapsulated.

Personal Communication Networks (PCN)

The biggest potential competitor to cellular looming on the horizon remains PCN, and it looks as though plenty of companies are testing out their own approach.

This is a wireless communications technology similar to cellular phone service, but intended to provide ready access to portable comms at lower cost.

Using a small, portable handset, a person would place (or receive) a call just as with an ordinary telephone or cellular. The handset may be used in an office, on-street, and in a residence. The handset would communicate with a "microcell" (small transceiver with limited range) serving a single office building or neighborhood block. The signals would then, in turn, travel through existing networks (such as satellite or terrestrial telephone networks) to connect to the end users.

One company, Comcast Corp., of Philadelphia, PA is conducting experiments that will interconnect personal communications services (PCS) signals with microcells linked to both a cellular network and a cable TV distribution system as well as testing with cable systems only. The cellular/mobile interconnection experiments are taking place in Trenton, NJ where Comcast operates both the non-wireline cellular service and a cable TV system. Comcast also operates non-wireline cellular and cable TV facilities in Philadelphia.

Comcast's tests are taking place in various cities.

For the many readers who tell us that they avidly keep track of these matters, the following new PCN testing authorizations have been approved since the last time we presented such data:

Motorola, on 864 to 868 MHz in Chicago, IL (KG2XBC).

Tel/Logic, Inc., on 1850 to 1990 MHz in a 35 mile radius of Pittsburgh, PA (KG2XBG); in a 35 mile radius of Dallas/Fort Worth, TX (KG2XBA).

Vista-United Telecommunications, on 864 to 868 MHz in area of Lake Buena Vista, FL (KG2XBI).

Comcast Corp., on 902 to 929 MHz, 1850 to 1990 MHz, 2400 to 2483.5 MHz, and 12700 to 13250 MHz, in a 50 mile radius of Los Angeles, CA (KG2XBO), in a 50 mile radius of Philadelphia, PA (KG2XBP), in a 50 mile radius of West Palm Beach, FL

NEC's M4800 does a lot of great new tricks.

(KG2XBQ), in a 50 mile radius of Baltimore, MD (KG2XBR), in a 50 mile radius of Indianapolis, IN (KG2XBS).

Casco Cable Television, Inc., 902 to 928 MHz, 1850 to 1990 MHz, 2400 to 2483.5 MHz, 5725 to 5850 MHz, in a 35 mile radius of Brunswick, ME (KG2XBT).

York Cable Television, Inc., 902 to 928 MHz, 1850 to 1990 MHz, 2400 to 2483.5 MHz, 5725 to 5850 MHz, in a 35 mile radius of York, PA (KG2XBU), in a 35 mile radius of Pearl, MS (KG2XBX).

Cable TV of East Providence, Inc., 902 to 928 MHz, 1850 to 1990 MHz, 2400 to 2483.5 MHz, 5725 to 5850 MHz, in a 35 mile radius of East Providence (KG2XBZ).

Viacom International, Inc., 900 to 901 MHz, 902 to 928 MHz, 930 to 931 MHz, 940 to 941 MHz, 1850 to 1990 MHz, 2400 to 2483.5 MHz, 5725 to 5850 MHz, 12700 to 13250 MHz, in a 40 mile radius of Nashville, TN (KG2XCG), in a 35 mile radius of Seattle/Tacoma, WA (KG2XJA), in a 40 mile radius of Milwaukee, WI (KG2XJC), in a 35 mile radius of Dayton, OH (KG2XJD), in a 50 mile radius of San Francisco, CA (KG2XJK).

Cincinnati Bell Telephone Co., 864 to 868 MHz, 1850 to 1990 MHz, in a 35 mile radius of Cincinnati, OH (KG2XKJ).

Cylink Corp., Part 15 spread spectrum, locations throughout the USA (KG2XKK).

Air/Ground Phones

In April of 1990, the FCC established the air-ground (A/G) radiotelephone service in the 848 to 851 MHz and 894 to 896 MHz bands. This service had been in operation on an experimental basis by GTE Airfone, Inc., for several years before April, 1990.

At the time the FCC established the A/G service, we commented in these pages that we thought the way the regulations were written that it might be difficult for new companies to enter the field to compete with GTE Airfone, Inc., because GTE Airfone already had established a large ground station network, plus service contracts with many air carriers.

The FCC has been asked to reconsider some portions of the regulations, which it has now done "in order to facilitate the development and operation of competitive A/G service."

One of the questions that arose was as to whether the FCC should invalidate GTE's airline contracts entered into prior to April, 1990. The FCC decided to impose restrictions that require GTE to refrain from enforcing the contracts' restrictive provisions to obligate the airlines to deal exclusively with GTE for their A/G service. GTE was required to notify the airlines of this.

The FCC also ruled that GTE must make its A/G service available to the other A/G licensees for resale. GTE was allowed 22 months to modify its equipment for narrow channel operation, and an additional 38 months to fully bring its operations into total compliance with the rules. These are among several other decisions the FCC also made relating to A/G service.

The Latest Page

The Regency Micro-Com pager is a new, low cost, beeper for use in the 148 to 160 MHz band. It's a two-tone, sequential tone, and voice pager that is compatible with most existing paging formats.

The device features a top mounted alert/monitor switch that permits the user to monitor all system messages or only those addressed to that specific unit. A reset button and on/off/volume control are located on top of the Micro-Com. There's a heavy-duty belt clip built into the unit.

Weighing only 8.5 oz. (including the battery), the compact unit is 4 by 1 by 2.25 inches, and housed in a high-impact plastic case. It is supplied with a receive crystal, two tone-reeds, and a rechargeable battery. Optional accessories include extra batteries, a drop-in battery charger with a slot for a spare battery, and additional tone reeds.

For more information on this unit, contact RELM Communications, 7707 Records Street, Indianapolis, IN 46226.

Coiled For Action

The Antenna Company brought out their new enclosed coil series of "K2+" glass mount cellular antennas. The encapsulated coil eliminates the annoying whistling that the wind causes as some cellular antennas move down the highways. This isn't merely a shrink-wrapped sleeve over an open coil, it's a smaller phasing coil that's completely molded directly into the whip itself.

This comes in a standard version with a 14 inch whip for normal use, or a 15 inch version for pickup trucks and 4WD utility vehicles like Broncos and Blazers. There's also a 5 dB double coil version with a 25 inch mast intended for rural areas with limited cell coverage, and for use on portable phones.

For more information, contact The Antenna Company, 2525 Braga Dr., Broadview, IL 60153, or circle 101 on our Readers' Service.

In The NEC of Time

NEC America's M4800 mobile cellular offers hands-free answering that picks up after two rings. An optional feature is built-in voice recognition for full hands-free operation. Another option is an automatic call processor that performs the same functions as an answering machine. In addition, it is capable of recording the caller's numeric message entered (such as his phone number) on the M4800 screen.

Additional features are an automatic paging function and (would you believe?) it will also play music while on "hold." The automatic paging function is for sending received numeric messages to the user's numeric pager each time there's an incoming call.

There are two programmable keys on the handset so the user can program several sequences of keystrokes, allowing the operation of many functions with one key touch. A special confidential memory bank permits access to certain specified phone numbers only when the owner's personal four-digit code is entered.

Many other interesting and unusual features abound in the NEC M4800. Does just about everything except think up good excuses to tell your wife why you'll be late for dinner. Quite a clever design, in all respects. You can get more information on the M4800 by asking NEC America, Inc., Mobile Radio Division, 383 Omni Drive, Richardson, TX 75080.

Be with us again next time! Send us any questions, ideas, thoughts, and complaints regarding personal communications. We are also interested in hearing from service suppliers, as well as equipment manufacturers with information on new products and services, including cellular, IMTS, ship/shore, pagers, air/ground, pagers, and PCN. ■

YOU SHOULD KNOW

BY HARRY HELMS, AA6FW

INTERESTING THOUGHTS AND IDEAS FOR ENJOYING THE HOBBY

Why Signals Fade

Signals fade on shortwave. Do they ever! There's the type of fading that happens just when that rare DX station is about to identify itself, and lasts only a few seconds when the station comes roaring back. Some signals fade out at sunrise, while others fade in at sunset. Sometimes fading happens in a slow, rhythmic fashion, while at other times the fading is so rapid that your S-meter bounces faster than a basketball in the hands of Magic Johnson.

But fading doesn't always have to be a nuisance. Sometimes it can be remedied a bit at your receiver. It can give you a clue as to where a station in an unknown language is coming from.

Let's take a look at what causes fading and what we can do about it.

The End Of A Bad Analogy

You may have read about how the Earth's ionosphere is like a mirror that reflects radio signals. That's a poor analogy you should forget about right now. Let Uncle Harry get to the point: *the Earth's ionosphere is like the surface of an ocean.* Think of the way sunlight reflects off an ocean surface. Sure, an ocean surface can reflect sunlight, like a mirror, if you look at a quiet inlet or lagoon, you can often see a good reflection of the sun or even clouds on the water. But an ocean is constantly churning, with waves, currents, and surges changing the way sunlight is reflected—or not reflected—from it. Our ionosphere is every bit as restless as an ocean.

One of the important ways the ionosphere changes is in its structure. The closest layer to Earth, the D-layer, is usually present only in the daytime. The next layer, the E-layer, is greatly weakened at night and often disappears then. The main signal refracting layer, the F-layer, changes in height between night and day. During the day in summer, it normally splits into separate F1 and F2 layers, while it remains a single thick layer during winter days. All layers of the ionosphere are typically more heavily ionized in the daytime than night (although the "spread out" F1 and F2 layers of a summer day are effectively less heavily ionized than the single F-layer of a winter day.).

Now consider that the ionosphere is not constant everywhere in the world. Suppose it's sunrise at your listening post. To the west, night conditions prevail in the ionosphere as the D and E layers are gone and a single F-layer is present. To your east, the D and E layers have been ionized by the sun (perhaps for several hours), while the F-layer is heavily ionized and perhaps has even split in two. If you're trying to hear a station located below the equator, keep in mind that it's the opposite season there and the ionosphere's condition is also the opposite. If it's December in North America, the ionosphere above you in the daytime has a single F-layer and weak to non-existent D and E layers. But if you're trying to hear signals from Australia, most of South America, or southern Africa, then those signals will first be refracted off an ionosphere with a split F-layer and stronger D and E layers. And, since the Earth is rotating, the structure of the ionosphere all along a path from you to that DX station will always be changing.

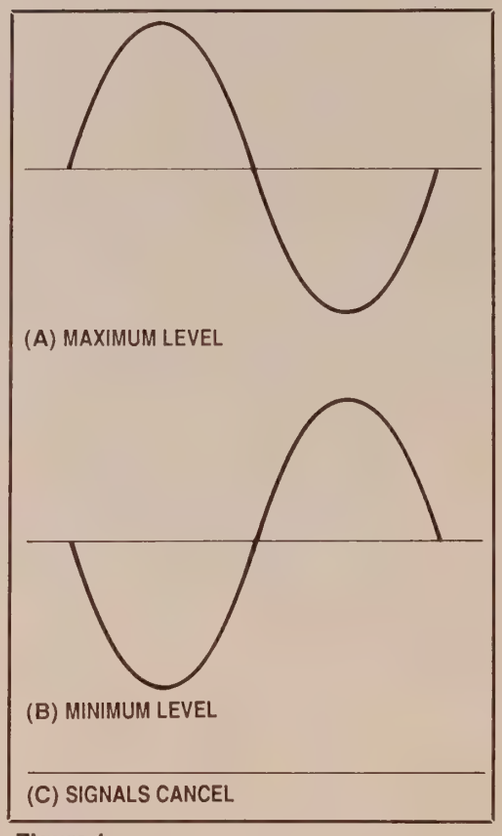


Figure 1

A lot of fading is the result of these ionospheric irregularities and turmoil, particularly slow, gradual fading and total fadeouts of a signal. Suppose you're listening for signals from Africa on the 4700 to 5000 kHz range around 0600 UTC. You'll normally be able to hear several stations in this range at that time. Around 0700, most of those signals will start to fade, and most will be gone long before 0800. Why? Because when it's sunrise at the station, the D and E layers will reform and the F-layer will greatly strengthen, absorbing signals in the 4700 to 5000 kHz range long before they reach your listening post. Normally this is a bummer, but it can also be used to help identify what you're listening to or, at least, what it couldn't be. For example, suppose you're listening to a station in a unidentified language on 4830 kHz around 0915. Could it be Radio Botswana? Probably not, by that time, Botswana has been in daylight for a couple of hours, and its signals on that frequency are being soaked up by the ionosphere over the transmitter site. It's a lot more likely that you're hearing either Radio Tichira in Venezuela or maybe even Radio Thailand on an extended schedule.

Phases Set To Stun?

A signal can be refracted off different layers of the ionosphere, or even at different altitudes in the same layer, meaning the same signal can arrive at your receiver by two or more paths and at slightly different times. The results can be real interesting.

The term *phase* is used in electronics to explain how two signals are related to each other in time. Figure 1 shows two signals that are completely opposite in phase; when one signal is at its maximum level, the other is at its minimum. When such signals are combined, they cancel each other out, producing no signal at all.

Now look at figure 2. The signals are only slightly out of phase. When the signals are out of phase, one is subtracted from the other. When they are in phase, they are added together. The result is a signal that is distorted compared to the original two.

When energy from a radio station's transmitter is refracted back to Earth from different points in the ionosphere, the signals arrive at your receiver out of phase. The difference can be measured only in milli or microseconds, but when the signals are processed in your receiver, the phase differences produce the sort of distorted signal you see in figure 2. If you're listening to a relatively strong signal that is usually clear,

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POP'COMM'S World Band Tuning Tips

November - 1991

This PopComm feature is designed to help you hear more shortwave stations. Each month, this handy, pull-out guide shows you when and where to tune to hear a wide variety of local and international broadcasts on shortwave.

The list includes broadcasts in many languages besides English. Most of the transmissions are not beamed to North America. Keep in mind that stations make frequent changes in their broadcast times and frequencies. Changes in propagation conditions may also make some stations difficult or impossible to receive. Your own equipment and receiving location will also have a bearing on what stations you are able to hear.

Note: EE, SS, FF, etc. are abbreviations for English, Spanish, French and so on. Some frequencies may vary slightly. All times are in UTC.

Freq.	Station/Country	UTC	Notes
3270	Ecos del Oriente, Ecuador	to 0300	SS
3270	Radio Namibia	0445	
3275	Radio Moscow	0200	
3300	Radio Cultural, Guatemala	0400	
3325	Radio No. Solomon, Papua New Guinea	1130	
3366	GBC-2, Ghana	0530	
3380	Malawi Broadcasting Corp.	0258	sign on
3473	Radio Padilla, Bolivia	0000	SS
4472	Radio Movima, Bolivia	0030	SS
4600	Baghdad Radio, Iraq	0230	AA
4600	Perla del Acre, Bolivia	0000	SS
4750	Radio Bertoua, Cameroon	0500	
4755	Radio Educacao Rural, Brazil	0100	PP
4760	Radio Frontera, Venezuela	to 0300	SS
4775	Rdf. Congohas, Brazil	2330	PP
4785	Ecos del Combeima, Colombia	0200	SS
4800	LNBS, Lesotho	0400	
4800	"La N," Dominican Republic	0300	SS
4805	Rdf. Amazonas, Brazil	0030	PP
4815	RTV Burkina, Burkina Faso	0600	FF
4820	Radio Atahualpa, Peru	0900	SS
4835	RTV Malienne, Mali	0600	FF
4840	Voice of the Strait, China	1300	CC
4845	ORTM, Mauritania	0545	AA
4850	CRTV, Cameroon	0500	
4865	Gansu PBS, China	1200	CC
4870	ORTB, Benin	0600	FF
4870	Radio Rio Amazonas, Ecuador	9339	SS
4875	Super Radio, Brazil	0000	PP
4875	Voice of Jinling	1200	CC
4890	ORTS, Senegal	0600	FF
4890	R. Centinela del Sur, Ecuador	1100	SS
4904	RN Tchadienne, Chad	0500	FF
4915	Radio Cora, Peru	1000	SS
4915	GBC-1, Ghana	0600	
4920	ABC, Australia	0930	
4935	Kenya Bc. Corporation	0200	
4940	Radio Continental, Venezuela	0400	SS
4955	Radio Marajora	0500	PP
4965	Radio Santa Fe, Colombia	1030	SS
4990	Radio Nigeria	0500	
5020	SIBC, Solomon Islands	0745	
5020	La Voix du Sahel, Niger	0600	FF
5025	Bhutan Broadcasting Service	1200	
5035	RTV Centrafricaine, Cent. Af. Rep.	0600	FF
5045	Radio Cultura do Para, Brazil	0300	PP
5047	RRI Jogyakarta, Indonesia	1200	Indonesian
5055	TIFC, Costa Rica	0430	
5156	Radio Galaxia, Bolivia	1000	SS
5536	Ecos Celestialles, Colombia	0200	SS
5915	Radio Alma Ata, Kazakhstan SSR	0130	
5950	Radio Japan	0300	via Canada
5965	Radio Havana Cuba	0400	
5995	RTV Malienne, Mali	0600	FF
6010	Radio Mil, Mexico	1130	SS
6045	Radio Melodia, Colombia	0700	SS
6065	Radio Super, Colombia	0000	SS
6089	Radio Esperanza, Chile	0830	SS
6090	Radio Bandeirantes, Brazil	0900	PP
6120	Radio Tirana, Albania	2200	
6135	Swiss Radio International	0200	
6135	Radio Santa Cruz, Bolivia	1000	sign on, SS
6165	Radio Netherlands	0030	
6180	Radio Nacional Amazonia, Brazil	2230	PP
6245	Vatican Radio	0500	EE
6250	Radio Nacional, Eq. Guinea	0500	SS
6300	Sani Radio, Honduras	1200	sign on, SS
6550	Voice of Lebanon	0500	AA
6576	Radio Pyongyang, No. Korea	1130	
6669	Radio Santa Monica, Peru	0200	weekends, SS
7110	Voice of Ethopia	0329	sign on, Amharic
7113	Lao National Radio	1200	Lao, etc
7115	Radio Sofia, Bulgaria	0400	
7140	RTBF, Belgium	0500	
7180	BBC	1300	via Hong Kong
7190	Radio Free Europe	0500	various langs.
7205	Cyprus Bc. Corporation	2215	Fri-Sun, Greek
7215	RTVI, Ivory Coast	2230	FF
7230	Radio Pyongyang, N. Korea	1100	
7230	Adventist World Radio, Italy	0730	
7270	Radio RSA, South Africa	0400	
7275	ELBC, Liberia	0700	
7340	Voz del CID	0400	SS
7345	Radio Prague Int'l, Czechoslovakia	0300	
7440	CPBS, China	1300	CC
7465	Kol Israel	0130	SS
7475	RTT Tunisia	2300	AA
7516	CBBS, China	1400	CC
7520	WWCR, Tennessee	0400	
8000	JJY, Japan	1000	time signals
8300	New Star Broadcasting Stn., Taiwan	1100	CC numbers
8350	Baghdad Radio	0300	AA

Freq.	Station/Country	UTC	Notes
9280	Voice of Asia, Taiwan	1400	CC
9345	Radio Pyongyang, No. Korea	1100	KK
9360	Spanish National Radio	0100	SS
9388	Kol Israel	0130	Hebrew
9445	Voice of Turkey	0400	
9465	WMLK, Pennsylvania	1930	
9475	Radio Cairo, Egypt	0200	
9480	Trans World Radio, Monaco	0756	sign on
9505	Radio Prague, Czechoslovakia	0530	GG
9515	RAI Sicily, Italy	0600	Italian
9525	Radio Marti, USA	0200	SS via VOA
9535	Swiss Radio International	1200	
9540	Radio Nacional, Venezuela	0330	SS
9545	Deutsche Welle, Germany	0300	via Antigua
9555	Radio Portugal	2200	PP
9560	Radio Jordan	1830	AA
9570	Radio Nigeria, Kaduna	0430	sign on
9580	Africa No. One, Gabon	0600	FF
9580	Radio Australia	1100	
9600	Radio Tashkent, Uzbek SSR	1200	
9615	Radio Cultera, Brazil	2330	PP
9620	SODRE, Uruguay	1400	SS
9630	Spanish National Radio	0230	FF
9660	Radio Rumbos, Venezuela	1030	SS
9665	Radio Marumby, Brazil	2330	PP
9675	Radio Polonia, Poland	0600	
9685	Radio Japan	2200	JJ, via Fr. Guiana
9690	Radio Beijing, China	0300	via Spain
9695	Radio Sweden	0300	
9705	Radio Mexico International	0200	SS
9735	Radio Nacional, Paraguay	2300	SS
9745	Radiobras, Brazil	1200	EE
9750	Qatar Broadcasting System	2200	AA
9765	Voice of the Mediterranean, Malta	0600	sign on
9800	FEBC, Philippines	0930	
9800	Radio France International	2200	FF
9810	Radio Russia, Russian SFSR	1100	RR
9820	Voice of the Arabs, Egypt	0500	AA
9835	Radio Budapest, Hungary	0130	
9840	Voice of Vietnam	1230	VV
9850	WCSN, Maine	0000	
9855	BRT, Belgium	0630	
9870	Radio Austria International	0130	
9855	Swiss Radio International	0200	
9910	BBC	2230	
9925	RTBF, Belgium	1100	FF
9950	All India Radio	1830	
10330	All India Radio	1330	Hindi
11335	Radio Pyongyang, No. Korea	0930	RR
11500	Radio Beijing, China	1100	
11588	Kol Israel	2230	
11620	Vatican Radio	0500	
11650	Trans World Radio, Guam	1530	
11660	Radio Sofia, Bulgaria	1930	
11685	FEBC, Philippines	0900	
11710	RAE, Argentina	0200	
11715	All India Radio	0000	
11720	BBC	0400	AA, via Cyprus
11735	Radio Yugoslavia	0100	
11740	Radio Korea, So. Korea	0300	
11770	Radio Kiev, Ukraine	0000	
11770	Radio Vilnius, Lithuania	2300	
11780	R. Nacional Amazonia, Brazil	2230	PP
11790	Spanish National Radio	1930	
11800	RAI, Italy	0100	
11805	Radio Yugoslavia	1400	RR
11810	Radio Korea, So. Korea	0600	
11820	Radio Havana Cuba	0400	
11825	Radio Tirana, Albania	0230	
11835	SLBC, Sri Lanka	1100	
11840	Radio Japan	0200	EE/JJ via Sri Lanka
11860	Radio RSA, So. Africa	0400	
11865	Radio Denmark	0430	DD, via Norway
11865	Trans World Radio, Guam	1330	
11870	AWR Latin America, Costa Rica	1200	
11890	Radio Oman	1800	AA
11895	Radio Netherlands	0730	via Bonaire
11910	Radio Australia	1330	
11920	Radio Yerevan, Armenian SSR	2200	Armenian
11920	Radio RSA, So. Africa	0400	
11930	Trans World Radio, Bonaire, Neth. Ant.	0300	
11935	Radio Liberty, Germany	0630	Ukrainian
11940	Radio Romania International	0358	sign on
11950	Radio Havana Cuba	0000	
11980	Radio Cairo, Egypt	1900	AA
11990	Radio Prague Int'l, Czechoslovakia	0000	
12005	RTT, Tunisia	0530	AA
12010	Radio Austria International	1830	FF
12035	Swiss Radio International	0200	
12055	Radio Moscow	0100	
12085	Radio Damascus, Syria	2030	
13605	Radio Australia	1600	
13610	Deutsche Welle, Germany	2000	GG
13625	KHBI, Saipan	2200	
13630	R. For Peace Int'l, Costa Rica	0230	
13635	Swiss Radio International	2100	
13675	BRT, Belgium	0050	FF
13675	UAE Radio, UAE	0330	
13720	Adventist World Radio, Guam	1000	RR
13785	Radio New Zealand Int'l	1900	
13855	INBS, Iceland	1945	Icelandic
14917	Radio Kiribati	0555	sign on
15010	Voice of Vietnam	2030	
15020	All India Radio	1300	
15030	R. For Peace Int'l, Costa Rica	2230	
15090	Vatican Radio	1545	
15095	FEBC, Philippines	0430	CC
15105	Deutsche Welle, Germany	1000	GG, via Antigua
15120	Vatican Radio	1930	
15140	Radio Nacional, Chile	0100	SS
15140	Radio Veritas Asia, Philippines	1515	Tagalog
15155	HCJB, Ecuador	0245	
15170	Radio Korea, So. Korea	0600	
15170	Radio Tahiti	0600	FF/TT
15190	RTV Congolaise, Congo	1200	FF
15250	Radio Portugal	2100	
15265	All India Radio	2200	
15315	Voice of the UAE	2000	AA
15330	Radio Sofia, Bulgaria	2300	
15335	All India Radio	1330	
15345	RAE, Argentina	0000	SS
15345	RTM Morocco	1700	AA
15360	Radio Norway	0000	NN
15375	Spanish National Radio	1930	
15400	BBC	1000	via Ascension
15425	Radio Portugal	1600	
15440	Radio Afghanistan	1900	via USSR
15445	Radio Canada Int'l	0358	sign on
15470	Radio Tashkent, Uzbek	1330	
15485	Voice of Turkey	0500	TT
15525	Swiss Radio International	2100	
15560	Radio Netherlands	0030	SSB
15575	Radio Korea, So. Korea	0045	KK
15600	Baghdad Radio	1430	AA
15640	Kol Israel	0100	
16000	VNG, Australia	1100	time signals
17500	RTT, Tunisia	0730	AA
17525	Voice of Greece	1230	Greek
17545	Kol Israel	1200	Hebrew
17555	WSHB, S. Carolina	2230	
17555	Radio Pakistan	1530	
17595	RTM, Morocco	1530	
17675	RTBF, Belgium	1600	FF
17720	Radio Vilnius, Lithuania	2300	
17725	V of the Great Homeland, Libya	1700	AA
17745	Radio Algiers, Algiers	1900	FF
17750	R. Surinam Int'l, via Brazil	1700	Dutch
17770	Radio New Zealand	0430	
17795	Radio Australia	0100	
17805	Radio Romania International	1730	EE
17810	FEBA, Seychelles	0430	
17825	Qatar Broadcasting System	1600	sign on, AA
17855	Voice of the UAE, UAE	1900	AA
17902	R. Nacional, Colombia	0000	SS
21490	Radio Austria International	0830	
21500	Radio Sweden	1530	
21505	BSKSA, Saudi Arabia	1200	AA
21510	R. Free Afghanistan, via RFE/RL	1300	Pashtu
21570	Spanish National Radio	1700	SS
21600	Radio Yugoslavia	1200	
21605	UAE Radio, UAE	1630	
21640	WCSN, Maine	1600	
21645	Radio France International	0030	
21715	Radio Yugoslavia	1300	
21740	Radio Australia	0500	
21750	Radio Beijing, China	1600	AA
21770	R. For Peace Int'l, Costa Rica	1400	
21850	RAI, Italy	1230	Italian
25690	Voice of the UAE	0730	AA
25740	Deutsche Welle, Germany	1200	GG
25950	HCJB, Ecuador	1700	

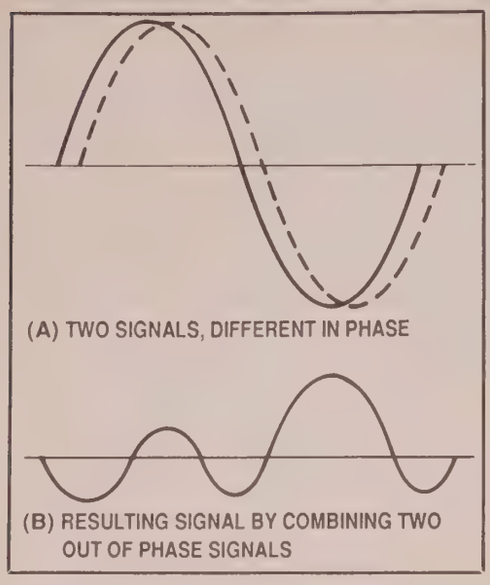

Figure 2

but gets distorted for a few seconds (or even fades out altogether) for a short time before returning to normal, then it's very likely you're experiencing phase-difference fading.

It's also possible for the two sidebands and carrier of an AM signal to arrive out of phase with each other as well as individually. If the carrier is refracted at different points and arrives out of phase, the carrier can be cancelled out, leaving only sidebands and the "Donald Duck" sound familiar to anyone who's tuned SSB in the AM mode. This happens often on the 540 to 1600 kHz AM broadcast band when you listen to higher-powered stations 300 to 500 miles away at night. In such cases, you can get a signal propagated by ionosphere as well as a ground wave signal. The resulting mix of signals arriving out of phase can drive your receiver crazy!

Blame It On The Poles

If you do much listening to stations in the Far East or Central Asia from North America, you've noticed that many signals have an extremely rapid "flutter" to them. While such signals can be quite strong, they can fade down and back up as rapidly as once every second or even more.

This fading pattern is found on signals which cross one of the polar regions before reaching North America, such as those from China, Vietnam, or one of the Koreas. Over the poles, there is a near-continuous disturbance in the ionosphere which produces such visible effects as an aurora. When radio signals cross the poles, this disturbance produces a rapid fading pattern on a signal which is known as *polar flutter*.

Polar flutter can be so rapid that it can distort a signal beyond intelligibility. However, it can give you a clue as to where a signal is coming from. Polar flutter is almost never found on a signal arriving from the east or west unless a major auroral event (such as the one of a couple of years ago that produced visible auroras in southern California and Texas) is in progress. It is also extremely rare on signals arriving from the south. Thus, the presence of polar flutter on a signal almost always indicates a signal arriving from over the North Pole.

Fighting Fading

Fading isn't always something that you have to put up with. Although it can seldom be eliminated entirely, there are some tricks that help in many situations.

The effects of fading increase as the bandwidth of signal increases. One reason CW signals are seldom affected by fading is that they are only 200 Hz or so wide. An AM signal spread over 10 kHz or so is much more vulnerable. If you've DX'ed sporadic-E skip on the FM broadcast band, you know how badly distorted those wideband signals can be due to fading and how abrupt fades are on the FM band.

The solution? *Use the narrowest bandwidth possible when fading is severe.* If you're tuning AM mode signals, try tuning it by setting your receiver to either USB or LSB (depending on which gives the best results), and tuning the AM signals as if they were a SSB signal. The steady "carrier" generated by your receiver's BFO in USB/LSB can also help to stabilize a signal by eliminating carrier loss due to phase variations as a source of fading.

Another trick is to experiment with your receiver's automatic gain (or volume) con-

(Continued on page 73)

ICOM's IC-R9000 . . . . . The Best Of Both Worlds

The pacesetting IC-R9000 truly reflects ICOM's long-term commitment to excellence. This single-cabinet receiver covers both local area VHF/UHF and worldwide MF/HF bands. It's a natural first choice for elaborate communications centers, professional service facilities and serious home setups alike. Test-tune ICOM's IC-R9000 and experience a totally new dimension in top-of-the-line receiver performance!

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THE HAM COLUMN

KIRK KLEINSCHMIDT, NT0Z
AMERICAN RADIO RELAY LEAGUE HQ

GETTING STARTED AS A RADIO AMATEUR

Put Your Computer on the Air! — A Packet Primer

Although PCs have only been around since the end of the 1970s, it seems like almost every radio enthusiast owns a personal computer (PC) today. In addition to contest logging and propagation software, many of us have our computers hooked up to telephone modems to connect our PCs to the outside world, i.e., other computers. It's easy to plug in a modem, boot some communications software and start exchanging messages and files with other computer users the world over.

The limitation, however, is the telephone. Unless you're satisfied with connecting your computer to your neighbors, you can easily rack up a hefty long-distance phone bill. If you're not just logging into a local bulletin board system (BBS), you may also be paying through the nose for long hours on commercial networking services such as CompuServe, PC-Link, Prodigy, Delphi and others.

How would you like to do your long-distance modeming for free? As long as you stick to noncommercial exchanges, Amateur Radio offers a great opportunity. It's called *packet radio*, of course!

Packet came along soon after the first PCs. Adapted from commercial digital communications by a few ingenious radio amateurs, it's now one of the most popular amateur modes. There are packet bulletin board systems (PBBSs) all over the world, and hundreds of thousands of hams have personal mailboxes (PMSs). Licensed hams can make computerized packet connections across town or state on VHF, UHF and microwave frequencies (50 MHz-300 GHz), and all over the world using VHF, UHF and microwaves to connect via amateur satellites or direct on the HF bands (below 30 MHz). There's always someone to "talk to" on packet.

It's easy and inexpensive to get into packet. You don't need any more computer knowledge than you do when you use your telephone modem. To get connected, you need a computer and communications software (or a plain "dumb" terminal), a transceiver, antenna, and a device called a terminal node controller, or *TNC*. Assuming you already own a PC, you can spend as little as $150 to set up a practical packet station of your own.

Computer Networking

Why is this wonderful technology called "packet" radio? Let's start with a quickie course in computer-data communications. *Networking* is a fancy term that simply means connecting computers to each other. When your computer is connected to another by wire, the two machines can easily send digital data (messages, program files, etc) in one continuous flow, from beginning to end. The progress of this flow is managed by what's known as a *protocol*, a system that lets two computers "talk" to each other.

Computer data is nothing but a series of digital 1s and 0s (remember binary code? Me either!). Because it's all made up of only 1s and 0s, this data is delicate—it's all or nothing, hit or miss, black or white. In the world of computers, each tiny binary digit ("bit") in a file is important; if just one is lost or changed, the entire file may be unreadable. Computers don't know what it means to "come close enough." As data is transmitted, the receiving end checks to see if it's coming through okay. Errors crop up if the wires between machines pick up static or noises along the way (electrical storms, appliances and other sources of electric/magnetic fields) and random "gremlins" can pop up that may mess up a bit here and there.

The protocol is a configuration of hardware and software used by the network, whereby the receiving-end computer checks what it's supposed to receive against what it's actually receiving. If all is well, it tells the sending computer to "keep it comin'"; but if there's a problem, it halts the flow a moment and tells the other machine to resend the garbled data.

On a wired network (such as a telephone connection), data flows uninterrupted between the two computers. Amateur Radio operators don't have private, dedicated "channels," however. Many people may share the same frequency. Therefore, in packet radio, information doesn't flow continuously from one machine to another—it squirts out of each station in short bursts so that many stations can exchange data on one frequency, just by taking turns transmitting. As we just saw, each burst must also be acknowledged as okay (or no good) by the receiving station. This means there are plenty of bits flying back and forth, and there has to be some way to control them.

At the heart of your packet station is the TNC. The TNC contains a radio modem and a packet assembler/disassembler (PAD). The PAD is a nifty circuit that takes a continuous flow of digital data (like the stuff you type on your keyboard or read from a disk) and breaks it up into small, fixed chunks. It puts information on the beginning and end of each chunk that tells what it's a chunk of, how much stuff is in the entire file, where it belongs in the original unbroken data stream, addressing information ("Where's this chunk supposed to go?") and when the transmitted file is finished. These specially addressed chunks of data are called *packets*.

Each packet is one of those bursts of data discussed above. The sending station's PAD takes the information coming into it from the computer or terminal and "prepares it for shipping." The receiving station's PAD "unwraps the package" and sends it to its computer or terminal.

The TNC's modem is similar to the modems used for telephone BBSing. Each data bit comes out of the computer as a pulse of a specified electrical voltage. One voltage stands for a binary 1 and another stands for a 0. Phone lines and voice transmitters are designed to communicate sounds. They aren't made to operate with digital signal voltages as such. A modem on the transmitting end takes in the 1 and 0 voltage pulses and turns them into audible high- and low-pitched tones. This is the "squawk" you hear when you listen to a telephone modem connection, and it's the "packet racket" you hear if you monitor the portions of the Amateur Radio bands where packet activity takes place (145.01-145.09 MHz, for example).

A modem on the receiving end takes the received audio squawking, converts it back to digital 1 and 0 pulses, and sends these to the computer or terminal, where—magically—they're read as the original data. Packet radio modems are similar in function, but not compatible with standard telephone modems. Your 2400-baud telephone modem won't work on packet radio, though; to get on the air, you have to build or buy a ham radio TNC. Nowadays, a used TNC can be purchased used for less than $100.

One More Thing

Aside from a transceiver, antenna, modem and a computer or terminal, you need one more thing to get on packet radio: An FCC license. Now that the FCC has created the new Technician class ham license, you don't have to learn Morse code to pass the test. All the information you need to get your "Tech ticket" is in the ARRL's new license manual *Now You're Talking!: Discover the World of Ham Radio*. To learn more about packet, pick up *Your Gateway to Packet Radio*, by Stan Horzepa, WA1LOU. Both books are available from your local ham radio dealer or from the ARRL. Call 203-666-1541 and ask for the Publication Sales Department. ■

CB SCENE

27 MHz COMMUNICATIONS ACTIVITIES

BY BILL SANDERS, SSB-295

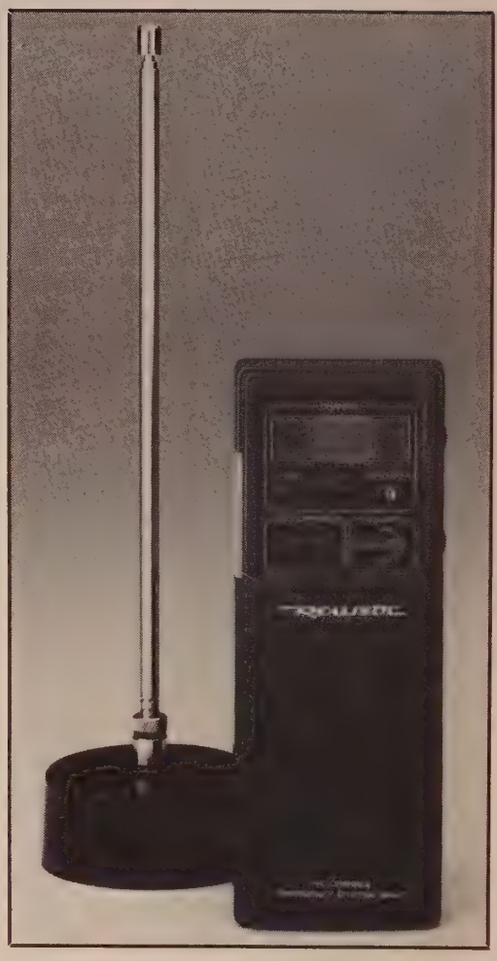
Here's that ideal spare CB you keep saying you're going to store in the trunk or under the seat "just in case." Let's just say that for less than $70, it's good insurance that you aren't going to ever be without the use of reliable CB comms, no matter what. That means, even if you're away from civilization when your regular CB rig (or antenna) is ripped off, damaged, malfunctions, or suddenly decides to go up in a puff of smoke you still have a back-up radio.

The answer is Radio Shack's Realistic TRC-409 Road Emergency CB system. With its extendible mag-mount antenna, the set puts out full power on all channels, and has an "Instant Channel 9" selector button. The receiver has an automatic noise limiter (ANL), and increased selectivity due to two ceramic filters. The whole thing is powered up from your vehicle's cigarette lighter.

Even for those who don't have a regular CB rig, and don't want one, the Realistic TRC-409, for $69.95, can't be beat for price and performance when it comes to a hideaway CB rig. It's there in the vehicle should the need ever arise to ask for road assistance, or even road instructions. It even comes in its own fitted storage case that accommodates rig and antenna.

Look for it at any Radio Shack store. This is a perfect and very useful holiday gift for someone that drives without a CB in the car—spouse, parent, grandparent, grown children, or special friend. Think about it when making up your holiday shopping list.

SSB-262C, in Miami, operates from here. Can you help him with some information he needs on a European rig? See this month's column.



Radio Shack offers this nifty mobile emergency CB system for less than $70. An interesting gift idea, what with the upcoming holidays.

Help Needed

We received a letter from Pat McGeehan, SSB Network Member SSB-262C (Also ham KC4VKG, and Registered Monitor KFL4FG), who tells us he has a problem. Pat's neighbor gave him a Sommerkamp transceiver. This European rig had originally come with a microphone, but many years ago the eight-pin mike connector had been removed.

Pat didn't give us the specific model number of the transceiver, but he's hoping that one of our readers can help him locate another mike, or provide a wiring diagram for the mike, or even let him know the address of the manufacturer.

If anybody can offer Pat some thoughts on this, his address is P.O. Box 570-192, Miami, FL 33257.

Another reader with a problem is Ricky, better known as *Bucketmouth 415*, of San Carlos, CA. He's got a President Madison rig that gives him no hassles all week, but sometimes on weekends especially, he's bowled over by about 7-lbs. of static. There's a machine shop about a block away from Ricky's location, and some people have suggested that the problem might be the power transformer on the pole out in front of his place.

Readers wishing to offer Ricky any thoughts or suggestions would be welcomed. Ricky's address is P.O. Box 1363, San Mateo, CA 94070.

Chuck, a reader in Woodside, NY writes to say that he picked up a rig at a flea market that has him a little puzzled. This rig is a used Super Star 3600. On the rig there's a switch marked "Band" that has three positions: low, medium, and high. The question is what this switch does.

We have had no personal hands-on knowledge of this particular radio, but believe it to be a so-called "export" rig. That is to say, it either runs too much power, and/or can operate out of the authorized band. If so, the FCC wouldn't allow its use on CB in the USA. Still, under several names, many export rigs seem to be (illegally) sold and used, anyway. Just a guess, but I would imagine that the switch in question may cause the unit to operate on legal channels only when placed in the "medium" position, then below Channel 1 in the "low" position, and above Channel 40 when in the "high" slot.

Blast From The Past

We said we would give readers a peek at some of the early CB units, and here's one we are sure you don't know about. It's the *Genie Fone*, from Alliance Manufacturing Co., of Alliance, Ohio. They are the manufacturers of famous *Genie* brand automatic garage door openers.

In the mid-1960's Alliance announced this 23-channel CB transceiver. It featured plug-in microphone via jack, switchable noise limiter, S/RF-meter, and 3 kHz delta tuning. This was a vacuum tube unit housed in a perforated steel case (including perforated faceplate). A big publicity splash was made to announce the *Genie Fone*. Working prototypes were demonstrated for members of the CB and ham radio press that Alliance had brought to its headquarters in Ohio.

But what happened? So far as has been determined, Alliance had a last minute change of plans, ultimately deciding against bringing out this (or any other) CB transceiver. We know of no units actually going to dealers or showing up on the CB market. All that remains is the memory and the only known photo of the elusive Alliance *Genie Fone*. We share these with you this month. Collectors, start your search!

BUCKETMOUTH 415

Ricky Joyner

SAN MATEO COUNTY

BAY AREA BUCKETMOUTHS CLUB FOUNDER

STATION	MO	DAY	YR	UTC	FREQ	REPORT	MODE
							TWO WAY

K2QFL Print

"Noise is the problem," so says Ricky (a/k/a Bucketmouth 415) of San Carlos, CA. He's looking for some ideas on cutting that racket down to size.

Here's the Alliance "Genie Fone." It's the CB rig that almost was!

Double Your Pleasure

A reader who lives on the outskirts of Cheyenne, WY advises that he uses a beam antenna to reach the operators in town from his location. While the three-element beam is great for long haul comms in the one direction, it's hardly suitable for local contacts in all directions surrounding his station. He doesn't want to invest big bucks in a rotor, nor does he wish to be faced with the installation rigors and all of the problems rotors can give in winter winds and ice, just for getting the ability to contact locals.

Our suggestion is to leave the beam up just the way it is, then add a second antenna (like an omnidirectional type) for the local contacts. Consider a Joe Gunn *Pistol* omni because it kicks out a potent signal and is easy to put up. These come from Joe Gunn Enterprises, Route 1, Box 32C, Highway 82, Ethelsville, AL 35461. A coaxial switch will enable you to jump back and forth between the two antennas.

You can easily build a duplexer that will feed your signal into both antennas simultaneously. Put the duplexer into a small metal box, add a couple of coaxial fittings and you're set to go. I've supplied the schematic here.

C1 is a 0.15 pf trimmer that is adjusted for maximum output. You can use this capacitor to phase antenna No. 2 in or out of service. For instance, if No. 2 is the omnidirectional, by detuning C1 the full output of your transmitter will go into the beam (antenna No. 1). L1 is an RF choke, such as an Ohmite Z-144 or equivalent. R1 is a 510 ohm resistor.

Salvaging The Signals

Your get up and go may have gotten up and gone without your even noticing. If you stop to think about it, your base station may not perform as well as it did a year and a half ago when you installed the new antenna. SWR is a little higher, incoming signals are a few pounds less on the meter.

Look, up in the sky! The antenna may not be as bright and shiny as it once was. Many base station antennas are aluminum. Take into account that sea air, smog, big city air pollutants, acid rain and many other things have an adverse effect on exposed metal. Oxide sneaks in between the joints. Blisters on the outside could go deep enough to rot the metal. This results in loss of efficiency. As transmitting range drops, receiver noises creep in. You barely notice it happening it until one day when signals from local mobiles flutter like long haul skip. When that happens, attention it definitely required.

Yes, antenna life can be prolonged and extended. Fight back! First, the antenna's going to have to come down from the roof to be renovated. There's no getting around this unpleasant task, but it will be worth the effort since it will add months or years of service to your antenna.

A collinear ground plane is used for the description here, but the treatment is the same for any type of aluminum antenna like a beam, 5/8th wave vertical, or other designs.

Assuming your antenna has been up for a year or more, it could have a pock-marked ("tangerine skin") look and a cruddy coating of powdery, whitish scales. You may find that the joints are all but impossible to take apart. The plastic parts could be faded and dried out. The whole thing feels sort of soft. Let's get to work!

Take off the ground radials. These things only get in the way and should come off easily. Also, they are easier to treat separately. The remaining antenna (19 ft. radiating element) is left intact. Lay out everything in a clean place such as a driveway, or the floor of a garage. Handle everything with care so nothing gets bent or kinked. A good idea is to support everything off the ground on saw horses at sufficient points to prevent deep sagging. Or hang the parts from the garage rafters by Nylon fishing line.

Inspect for serious damage. The plastic insulation should be free from cracks and splitting. Metal parts should be sound. No sharp bends, kinks, cracks, or split seams. If you find any serious damage, as mentioned here, consider replacing the antenna. If not, let's move right along.

Get a wad of medium grade steel wool and use it to brighten all metal work. Don't polish clear through to the base metal, just take off the loose and powdery oxide. Give it a good workover, but leave it slightly "gray." Steel wool cuts fast and deep, so spare the elbow grease or you won't have anything left to treat. Clean up the plastic and the coaxial connector. The plastic coverings on the ends of the elements should be taken off and cleaned separately. They'll go back on later.

Thoroughly wipe down the radiating element, the radials, and small parts with a clean dry cloth after using the steel wool.

Corrosion between the section joints may set up resistance when the whip (radiating element) flexes in the wind. To offset this, all sections should be bonded. Prepare enough straps to cover every joint in the assembly, including the radials. Cut up a length of 1/4" braided bonding strap into 2" lengths, then tin each end back to about 1/4 inch. Punch (don't drill) a 1/8" hole in each tinned end. You can use an ice pick or a scratch awl. If you can't get bonding braid, any flexible conductor is OK, but it must have connectors of some sorts on the ends.

It's best to practice this next step on some scrap aluminum tubing before trying it on the antenna itself.

Using a punch or scratch awl, punch (don't drill) holes in the aluminum shaft and radials on each side of the joint clamps or set screws, just enough to use a No. 4, ¼ inch, self-tapping sheet metal screw. These holes should be close enough to tie together each jointed section of the 2" bonding straps,

leaving just enough slack for flexing. Don't line up the holes along the sections of the pole. Each connecting pair must be in line, but successive pairs should be offset by 30 or 40 degrees from one another.

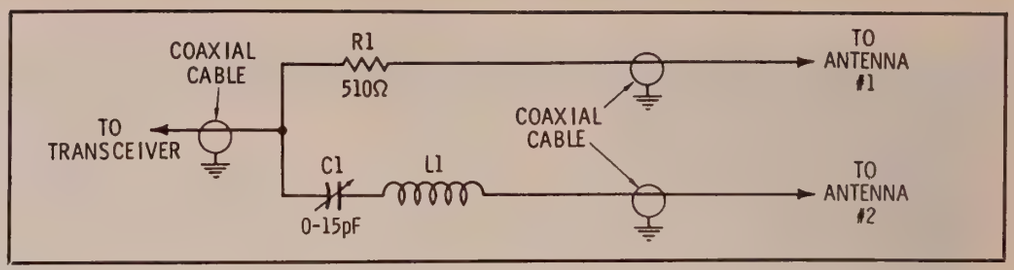
Screw down all the bonding straps and tighten, but don't strip out the threads. Aluminum doesn't take much pressure before it strips. When it feels good and firm, leave it there.

You're almost ready for final refinishing, so make sure the antenna is located so that it can easily be handled and turned without having to be picked up or repositioned. Wipe down everything with carbon tet or alcohol. Warning: Do NOT ever use gasoline to clean an antenna as it is extremely hazardous to work with, and will do no more here than carbon tet or alcohol.

The wipe down will take off all remaining grease and grime. Look at the rag and see how much came off. The antenna should now be considered as "clean." Don't lie it on the ground. Use gloves when handling it, or if that's not possible, then handle it as little as possible.

After the carbon tet or alcohol has evaporated, mask off all insulating plastic and the connector. It is important that the insulation be protected. Don't scrimp, but don't cover the metal parts.

Zinc Chromate primer gives the best bond and protection to aluminum. Use a good quality, like *RustOleum*, since the vehicle in this product penetrates deeply and doesn't just sit on the surface. A one pound should be enough for most antennas except monster beams.



Here's the design of an antenna duplexer, as described in the text.

Coat all surfaces well, but not thickly. Allow to set up for four hours, then coat again. Give special attention to crevices and seams. Get it all. Watch for thin or missed spots. Make the coating as even as possible over all metal parts, whip, radials, and hardware (except the coaxial connector).

Let dry a full 24 hours, then give another finish coat. If you use a brush instead of a spray, the second coat should be enough. If you opt for a spray, use outdoors or in a well ventilated area and wear a mask over your nose and mouth.

Allow the job to cure to 48 hours, then remove the masking tape everywhere except the coaxial connector. Coat the plastic insulation with clear Krylon plastic spray, at least three light coats. Keep the Krylon off the painted metal as the solvent in the Krylon can lift the Chromate. You may want to mask the Chromate near the areas to be sprayed with Krylon.

Put everything back together just the way it was, taking care not to damage the coatings, or bend the shafts. Pull the tape off the coaxial connector. Buy yourself some new coaxial cable, at least RG-8/U or better. Forget about RG-58/U except for your mobile unit. Put it back up, exercising safety cautions to locate it where the antenna could not possibly come into contact with power lines during its installation, or if it should topple later.

We'd like to hear from you with your QSL's, shack photos, news clippings, thoughts, suggestions, and opinions. ■

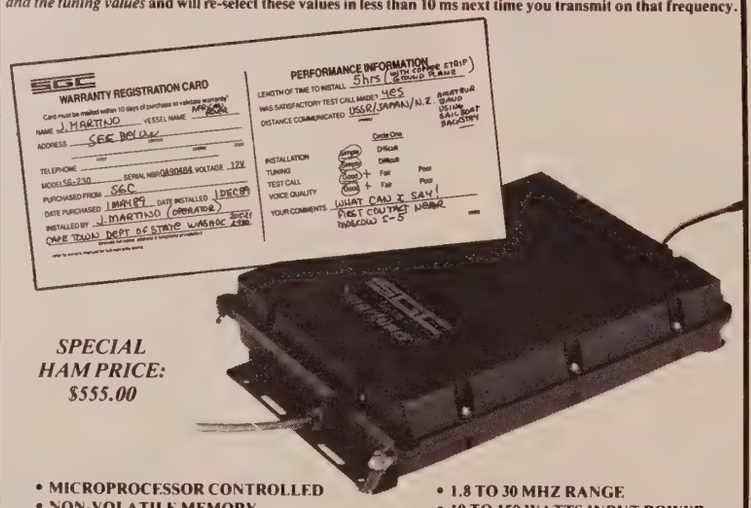
SGC

SG-230

SMARTUNER

HF ANTENNA COUPLER
SSB, AM, CW & DATA
FAST-INTELLIGENT-ACCURATE
OPERATES WITH ANY HF TRANSCEIVER

The *Smartuner* high technology coupler intelligently tunes any length antenna (8 to 80 ft) in the HF band. The unit will operate with any HF transceiver within its' specifications. The *Smartuner* switches 64 input and 32 output capacitance combinations plus 256 inductance combinations in a "pi" network resulting in over a half-million different ways to ensure a perfect match for the transceiver. And, *it remembers the frequency and the tuning values* and will re-select these values in less than 10 ms next time you transmit on that frequency.



SPECIAL HAM PRICE: $555.00

- MICROPROCESSOR CONTROLLED
- NON-VOLATILE MEMORY
- WATERPROOF
- B.I.T.E. INDICATOR
- 1.8 TO 30 MHZ RANGE
- 10 TO 150 WATTS INPUT POWER
- 10 mS RETUNING TIME
- 8 TO 80 FT. ANTENNA (All Types)
- FOR MARINE, AVIATION, HAM AND PARA-MILITARY APPLICATIONS

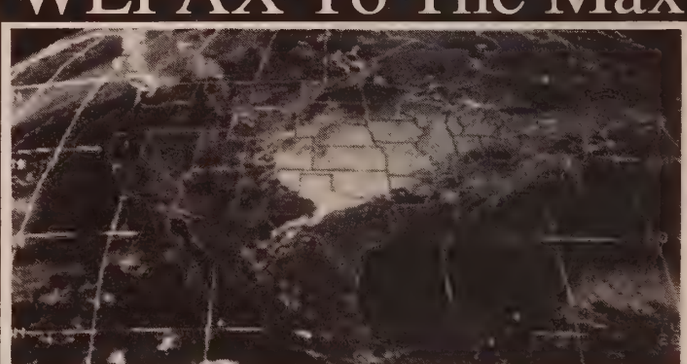
The SG-230 Smartuner is available from:

Eli's Amateur Radio, FL - 305-525-0103
Henry Radio, CA - 213-820-1234
Gordon West Radio, CA - 714-549-5000
Surplus Sales, NE - 402-346-4750
Amateur Electronic Supply, WI - 800-558-0411
Ham Radio Outlet, CA - 800-854-6046
Jun's Electronics, CA - 213-390-8003

SGC Inc. SGC Building, 13737 S.E. 26th St. Bellevue, WA 98005 USA
P.O. Box 3526, 98009. Telex: 328834. Fax: 206-746-6384 Tel: (206) 746-6310

CIRCLE 128 ON READER SERVICE CARD

WEFAX To The Max



PC GOES/WEFAX 3.0 $250

PC GOES/WEFAX 3.0 is a professional wefax image reception and analysis system for the IBM PC and compatibles. The product includes a demodulator that handles both AM and FM fax signals, advanced signal processing software, tutorial cassette, and complete 325 page reference manual. The software includes the following advance features:

Menu Driven	CGA,HGA,EGA,VGA & Super VGA
Start/Stop Tone Recognition	Orbital Prediction and Display
Unattended Operation	Time Lapse Frame Looping
Tuning Oscilloscope	Slide Shows
Resolution up to 1280x800x256	Export to PCX & GIF Files
Programmable Colorization	Grayscale on all Popular Printers
Brightness and Contrast Control	Programmable IOC & Line Rates
Pixel Photomery and Histograms	Infrared Thermal Analysis
Image Zoom, Scroll, Pan, Rotation	APT Latitude & Longitude Grids

PC HF FACSIMILE 5.0 $99

PC HF Facsimile 5.0 is a complete reception system for shortwave FSK facsimile on the IBM PC and compatibles. The product includes an FSK demodulator, tutorial audio cassette, 250 page manual and signal processing software. The product includes many of the advanced features of PC GOES/WEFAX 3.0 but at a fraction of the price. Call or write for a complete catalog of products.

Software Systems Consulting
615 S. El Camino Real, San Clemente, CA 92672
Tel:(714)498-5784 Fax:(714)498-0568

CIRCLE 129 ON READER SERVICE CARD

PIRATES DEN

BY EDWARD TEACH

FOCUS ON FREE RADIO BROADCASTING

Instead of kicking things off with logs this time, let's cover some news on the QSL front. William Schmitz in Washington, DC says the mail drop for the **Voice of Tomorrow** is no longer valid. His report to the station at the usual PO Box 314, Clackamas, OR 97015 was returned by the post office stamped "forwarding address unknown."

Pat Murphy in Virginia drops a note to compliment **WJDI-1620** on the high quality QSL's this station sends out. Pat includes a copy of a WJDI QSL and I'll be featuring it in an upcoming column. Pat also remarks that "this very remarkable phenomenon we call Pirate Radio. . . is the most fun (I've) had with my shortwave in a long, long time."

Domenic Bianca, who operated **KUSA**-Radio Wisconsin from Reedsburg, Wisconsin until he was busted by the FCC, sends along a sample KUSA QSL which also qualifies for the quality QSL category. It's 8½ x 11 inches with red and black print.

On the other side of the QSL card, the operator of **Zodiac Radio** says the cards he's sent out are not QSL's. He says they are "what were going to be QSL cards." One actual QSL was sent to a European listener. About 53 other cards were sent. I'm a little unclear as to how the recipients of these 53 cards were chosen if not in response to reception reports of some kind. Zodiac Radio was shut down by the FCC, does not intend to return ,and the operator says he doesn't want all this QSL business as it might lead to the FCC "sniffing around" and he wants to be forgotten by them.

On to some loggings: Damon Cassell in Massachusetts had **Action Radio** with a show hosted by A.J. Michaels and then the Dave Edwards Show from New York, all from 2301 tune in on 7415. William Schmitz also had the station at 2250 to 0013 with music, joke commercials and comedy skits hosted by the same two people.

Schmitz heard **Radio USA** on 7417 from 2135 to 2306 with punk rock, a "DX Party Line" program (I don't know if this was a tape of HCJB's show or a take-off on it). Also aired were "Science Today," listener's mailbag and fake commercials. Joe King was the host and the station featured German ID.s Cassell had several logs on Radio USA, hosted by Phil Music to 2306 sign off on 7415. Also at 2300 claiming to broadcast from a semi-submerged leaky bathtub anchored off the coast." The station asked for a donation of a World War II freighter and a powerful transmitter.

Skip Harwood of California had **KPUD - Topotongo Radio** on 7407 at 0230-0405 airing Hawaiian music and the Kevin Courtney Show. A "Pud Franklin Boy Genius Radio Network," they said. Plenty of technical problems, says Skip.

I AM PLEASED TO CONFIRM YOUR RECEPTION REPORT OF
KUSA
RADIO WISCONSIN
A FREE COUNTRY SHOULD HAVE FREE RADIO
7 MHz 100 watts to North America
25 MHz 3000 watts E.R.P. to Eurpoe and the Middle East
SUPPORTING AMERICAN TROOPS DURING THE 1991 MIDDLE EAST WAR
21MHz 300 watts E.R.P. to Europe and the Middle East
OCT. 1990 - FEB. 1991

Here's the attractive, certificate-sized QSL from the now defunct KUSA-Radio Wisconsin.

Skip also had **KCAN** on 7407, running big band music from 0408 tune in to 0425 tune out. ID as "the shortwave service of the Amalgamated Plumbers Union."

Cassell had the **Voice of Venus**, hosted by Scott Wild, but only via a Radio USA relay. Announced their address as PO Box 452, Wellsville, NY 14895. Wild said he was looking for more relay outlets for the Voice of Venus. Cassell noted them at 2210-2230, with Radio USA continuing after 2230.

Robert Ross in Ontario found the **Secret Mountain Laboratory** on 7415.9 at 0239 to 0255 sign off. The broadcast had folk, country, rock and IDs as "Secret Mountain Laboratory." Said they were broadcasting in the 31 and 41 meter bands.

Ross heard a relay of **Radio Veronica**, which, he notes, is an offshore Scottish pirate. This was on 7415 at 0107 to 0136 sign off. Had rock and new wave music, IDs as "FM-101" and "Radio Veronica," "Veronica's Super Gold 101." They gave their address as 507 Weymouth Rd., Auckland, New Zealand. Also mentions of "FM-101, the home of the Veronica family." Used the song "Veronica" by Elvis Costello as a theme. Also a mention of "from the wastelands of Scotland, the Brian Smith Show." Bob notes the relay was via a US pirate, but I guess it did not ID before sign off.

Schmitz heard **Radio Comedy Club International** on 7417 at 0040 to 0052 when it went off the air with technical problems. Actually, Bill thinks this may have been via a Radio USA relay. Included comic songs and fake commercials and used the slogan, "We are the fun one."

Merville A. Thorne-Booth in California reports **KLOG** -the Voice of Slobovia, off the Slobovia Radio Network, on 7406 at 0400-0419. The announcer claimed to be broadcasting from an "abandoned guano quarry deep in the Slobovian Alps." No maildrop mentioned.

Bob Ross continues to pull in the QSLs. His latest crop: WHO-7415, CSIC on 7412 and 7552, the Voice of Bono-7412, Pirate Freaks Broadcasting Service, probably located in Holland, on 6285 with 180 watts, according to the QSL. Also Samurai Radio-7415, Tower Radio from Holland on 15050, 4th of July Radio-100 watts on 7415, Hope Radio-7411 with 250 watts and East Coast Beer Drinker with 80 watts from the New York City area, according to the QSL.

Remember to keep those reports coming my way. Besides your logs and QSL news, we are always delighted to hear from people behind the mikes with info and news about their operations, your equipment, future plans, and so on. Photos are really appreciated!

That covers things for this time. ■

BROADCAST DX'ING

BY ROGER STERCKX, KVT1JH

DX, NEWS AND VIEWS OF AM AND FM BROADCASTING

The Beat of a Different Drummer: Anybody remember when Philadelphia's WFIL/560 was a rocker with big ratings? That was a couple of years ago. About two years ago, WFIL turned into WEAZ/560 that simulcast the adult contemporary programming of its sister station, WEAZ-FM/101.1 MHz. The good news is that the AM outlet recently switched to its own separately programmed format. The new format is along the "beautiful music" lines, and is called "Wish AM," which is somewhat reminiscent of the former WWSH-FM (now WEGX-FM) that used to run that format. There has been some talk of changing the AM outlet's callsign, but that's for the future. Thanks to John S. Flack, Jr., of Mt. Laurel, NJ for telling us about the new WEAZ-AM.

Speaking of Call Letters: Very often when stations simulcast, you may hear them give a station break by announcing a station break such as (just as a hypothetical example), "WXXX-AM and FM," or "WXXX-AM and WXXX-FM." What you might not know is that when you hear such an announcement, it's not exactly correct. The call letters of the FM outlet are WXXX-FM, but the AM station's actual FCC callsign isn't WXXX-AM. It's just plain WXXX. Stations announce that way all the time though, and it doesn't seem to bother the FCC.

One interesting situation came about a couple of years ago when a station I sometimes listen to decided to stop simulcasting over their AM and FM outlets. When they began programming their FM outlet separately, they also changed the FM outlet's call letters. When they were simulcasting, they gave their station breaks as in the dual callsign example above. After the FM station was no longer part of the AM's programming, the AM outlet identification was still being given with the letters "AM" tacked onto them (as in WXXX-AM). After a few weeks of listening to this, I called the station and asked the manager why they were giving the wrong call letters, since the ones they were announcing had never been assigned, and it no longer served any purpose to indicate that an FM outlet was involved.

It had never occurred to anybody there, I was told. That day they dropped the incorrect AM identification.

Welcomed, With Reservations: Ralph Hays, of Edgerton, WI writes to tell us that WSJY/107.3 ("Joy 107") recently put up a new tower in order to include Madison, WI within their signal coverage area. This old tower (and the WSJY studio) is about 15 to 20 miles from Ralph's location. The new tower is about 2 or 3 miles south of Ralph's location. Ho boy!

Ralph likes to listen to WQFL/100.9 in Rockford, which is also south of his location. Despite the rather large frequency separation of the two stations, some days Ralph can hear only WSJY when he tunes to WQFL's channel, or even 200 kHz to either side of the WQFL channel. He even has this problem on his car's FM radio, and from further away from the WSJY antenna than his house.

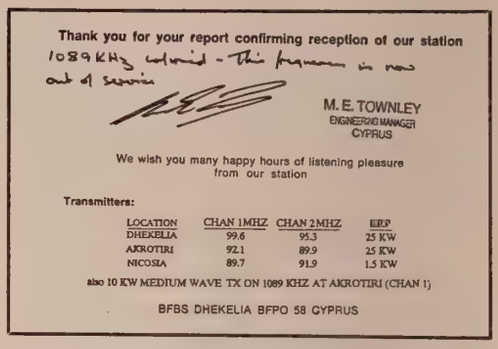
All I can tell you, Ralph, is that solid state FM receivers seem to be more prone to this type of signal overload than used to be encountered with vacuum tube circuits. What I would do if I were you, is write a letter to the Chief Engineer at WSJY and also at WQFL. Explain your problem in detail, and describe your receiving equipment. Perhaps they will be able to provide some direct assistance.

Student Station: KDXL/106.7, in St. Louis Park, MN is a 10 watt station run by the students at St. Louis Park High School. They run a classic rock format and operate from 7:30 a.m. to 10 p.m., Monday to Saturday, throughout the school year. Students do everything at the station. Thanks to Chris Thompson (a student at the school) for filling us in on KDXL.

Interesting Catalog: We get some good catalogs here from time to time. One we liked came in from Oregon ComSystems, 1257 Siskiyou Blvd., Suite 132, Ashland, OR 97520. Their catalog isn't fancy, being several mimeographed sheets. But it has a really good assortment of low-power FM stereo transmitters and antennas that are realistically priced. These are suited to a number of applications such as talking billboards, in-school transmitter, tour guide transmissions, real estate sales, etc. You might want to ask for a copy of the catalog. Tell them we sent you.

EBS Information: The unfortunate incident when a Missouri FMcaster sent out a hoax Emergency Broadcast System (EBS) signal (they were fined $25,000 by the FCC, which failed to see the humor) pointed up the fact that the government regards the EBS as a rather serious broadcasting activity.

The FCC has now warned broadcasters not to alter the actual EBS tones, or send out



Thank you for your report confirming reception of our station
1089 KHz channel - This frequency is now out of service

M. E. TOWNLEY
ENGINEERING MANAGER
CYPRUS

We wish you many happy hours of listening pleasure from our station

Transmitters:

LOCATION	CHAN 1 MHZ	CHAN 2 MHZ	ERP
DHEKELIA	99.6	95.3	25 KW
AKROTIRI	92.1	89.9	25 KW
NICOSIA	89.7	91.9	1.5 KW

also 10 KW MEDIUM WAVE TX ON 1089 KHZ AT AKROTIRI (CHAN 1)

BFBS DHEKELIA BFPO 58 CYPRUS

QSL from British Forces Broadcasting Service in Akrotiri, Cyprus on its former 1089 kHz, 10 kW. (Courtesy Ivan Cholakov, Bulgaria.)

We have it on good authority that WRKR/107.7 is one of the most popular stations in southwestern Michigan, and these stickers are seen everywhere. Now in our pages, too! (Courtesy A. Eddington, Kalamazoo, MI)

AFN, Munich/1107 and Augsburg/1485, in Germany will be closing down next year, along with the FM outlet on 100 MHz. This bumper sticker was given to R.C. Watts, of Louisville, during a recent visit to AFN in Munich.

Applications For AM Facility Changes
Applications Filed To Change FM Facilities

KDEZ	Jonesboro, AR	100.1 MHz Seeks 100.3 MHz
KEDR	Ione, CA	88.3 MHz Seeks move to Sacramento
KGVM-FM	Gardnerville, NV	99.3 MHz Seeks 99.1 MHz
KNEI-FM	Waukon, IA	103.9 MHz Seeks 103.5 MHz
KWYN-FM	Wynn, AR	92.9 MHz Seeks 92.5 MHz
WKZC	Scottville, MI	95.9 MHz Seeks 94.9 MHz
WWWQ	Glasgow, KY	105.5 MHz Seeks 105.3 MHz
WZBO-FM	Edenton, NC	102.3 MHz Seeks 102.5 MHz

FM Frequencies Changed

KPCR-FM	Bowling Green, MO	100.9 MHz To 94.1 MHz, 25 kW
KZZQ	Mirando City, TX	100.9 MHz To 100.5 MHz, 42 kW
WUMH	Fairfield, ME	93.3 MHz To 93.5 MHz, 13.5 kW
WVIK	Rock Island, IL	90.1 MHz To 90.3 MHz, 31 kW

Permit For New AM Station Granted

HI	Haiku	1570 kHz

Applications Filed To Change AM Facilities

KASM	Albany, MN	1150 kHz Drop to 2.1 kW
KDEC	Decorah, IA	1240 kHz Drop to 500 watts

Changed AM Facilities

WGAB	Newburgh, IN	1180 kHz Dropped to 675 watts
WMLX	Florence, KY	1180 kHz To 1160 kHz, 5/1 kW
WYMB	Manning, SC	1410 kHz To 920 kHz, 2.3/1 kW

Requested Changed Call Letters
FM Call Letters Changes Requested

Now	Seeks	
KNIC	KVAY	Lamar, CO
WMML	WLVV	Mobile, AL
WZYC-FM	WKQT	Newport, ME

Call Letter Request Withdrawn

Now	Wanted	
(new)	KQUG	Wrightsville, AR

New AM Call Letters Issued

KXIZ	Tioga, LA

Changed AM Call Letters

New	Was	
KALN	KIKS	Iola, KS
KLZK	KMUL	Muleshoe, TX
KZZP	KLUC	N. Las Vegas, NV
WBIG	WYSY	Aurora, IL
WKXP	WXLN	Eminence, KY
WNWS	WBHT	Brownsville, TN
WQCR	WHMO	Jackson, TN
WRMD	WLFF	St. Petersburg, FL
WRCK	WVTI	Ft. Myers, FL
WWWR	WBNI	Roanoke, VA

Applications For New AM Stations

AL	Selma	88.3 MHz	100 kW
AZ	San Carlos	103.7 MHz	3 kW
AZ	Window Rock	103.1 MHz	3 kW
FL	Naples	91.7 MHz	2 kW
FL	Zolfo Springs	106.9 MHz	6 kW
GA	Smithville	106.9 MHz	6 kW
ID	Eagle	107.9 MHz	
ID	Rexburg	91.5 MHz	100 kW
IL	Mt. Morris	95.7 MHz	3 kW
KY	Garrison	98.3 MHz	
ME	Spencerport	101.7 MHz	2 kW
MI	Marquette	94.1 MHz	5 kW
MN	Coltraine	96.1 MHz	100 kW
MS	McLain	96.9 MHz	6 kW
MS	Starkville	89.1 MHz	3 kW
NC	Oxford	91.1 MHz	5 kW
NE	Norfolk	90.9 MHz	50 kW
NJ	Atlanta City	88.9 MHz	10 kW
NJ	Beldvidere	107.1 Mhz	
NY	Saugerties	92.9 MHz	6 kW
WV	Summersville	90.5 MHz	11 kW

FM Permit Forfeited; Call Letters Deleted

KNSP-FM	Staples, MN	94.7 MHz

Permits Granted For New FM Stations

AL	Anchorage	88.1 MHz	155 kW
AL	Attalla	102.9 MHz	1 kW
AL	Dothan	101.3 MHz	3 kW
AL	Rogersville	93.9 MHz	3 kW
AR	Prairie Grove	94.9 MHz	1 kW
CA	Los Banos	106.9 MHz	3 kW
DE	Selbyville	97.9 MHz	3 kW
FL	Edgewater	93.1 MHz	3 kW
FL	Marianna	93.3 MHz	
GA	Fitzerald	96.9 MHz	6 kW
GA	Harlem	95.1 MHz	6 kW
GA	Hinesville	104.7 MHz	3 kW
ID	Preston	96.7 MHz	105 kW
IN	Nashville	95.1 MHz	2 kW
KY	Cumberland	102.7 MHz	
KY	Reidland	106.7 MHz	3 kW
LA	Vidalia	104.7 MHz	3 kW
MD	California	102.9 MHz	3 kW
MO	Ashland	106.1 MHz	50 kW
MO	Halfway	93.1 MHz	2 kW
MO	St. Robert	96.5 MHz	3 kW
MO	Saipan	99.5 MHz	
NH	Lancaster	102.3 MHz	3 kW
NJ	Atlantic City	89.9 MH	6 kW
NY	Bridgeport	99.5 MHz	3 kW
NY	Peru	88.3 MHz	200 watts
TX	Franklin	98.9 MHz	3 kW
VA	Petersburg	100.3 MHz	3 kW
WI	Altoona	98.1 MHz	6 kW
WI	Whitewater	104.5 MHz	3 kW

any other false tones or musical notes that might confuse listeners into thinking they are hearing an actual EBS alert. Neither do they want any announcements made that are worded anything like the voice portions of an EBS test.

All broadcast stations are required to purchase EBS, install, and run weekly tests of EBS equipment. Each station decides how it will participate with respect to broadcasting actual EBS messages it receives over this equipment. For national emergencies, stations decide whether they will remain on the air and broadcast Presidential messages, or if they will shut down their operations until the EBS activity is ended. For state and local emergencies (flash floods, power outages, forest fires, earthquakes, tornadoes, hurricanes, etc.) stations can broadcast the EBS messages or continue with regular programming. The FCC encourages stations to broadcast all EBS messages.

In 1990, the EBS received a record 1,430 EBS activation reports from 192 stations for emergencies.

Nag, Nag, Nag: In 1987, the FCC turned down a request by the owners of FM station WRSF, Columbia, NC. They wanted to move their main studio 51 miles from Columbia to Nags Head, which was the site of its auxiliary studio, and beyond the station's principal community contour. The FCC turned down the request because the agency said that the station failed to show how the public interest would be served by such a change in the WRSF facilities.

Later, someone told the FCC that WRSF had moved its main studio to Nags Head, anyway. The FCC's investigation indicated to the agency that the station's staff at Columbia did not warrant being considered a "meaningful management staff presence," as the regulations required. WRSF had a full-time office manager and two managers in Columbia, but they were there only a few

In Cleveland, the AM callsign WGAR goes back to 1930. The station has become WKNR/1220. WGAR can still be heard on FM at 99.5 MHz. (Courtesy John C. Thomas)

hours per week. The FCC said that Columbia didn't qualify as a main studio.

The station was ordered to comply with the regulations and correct the situation to the satisfaction of the FCC, also to submit a report specifying the steps that had been taken to do so.

Don't Pump Up The Power: WLBE/790, of Leesburg-Eustis, FL asked the FCC for permission to temporarily increase its day and night power in order to maintain its service area because of lost coverage due to interference originating from a Cuban station running excessive power on 790 kHz.

The night power increase was granted, but the daytime increase request was denied. The FCC said that the daytime power increase might cause WLBE's signal to overlap into the service area of co-channel WMRZ in South Miami, FL.

WLBE protested the denial, claiming that the FCC technical rules did not apply to requests to relief from Cuban interference or, as an alternative, should have qualified WLBE for a waiver from any such protective rules.

The FCC remained unmoved, maintaining its denial of this request. The agency said, in essence, that it was unwilling to put another licensee's daytime coverage in jeopardy because of WLBE's desire to override Cuban interference, even though WLBE's had lost some of its own service area because of the Cuban interference. Nor was a waiver justified, sayeth the FCC.

Too Low: You may have heard of Low Power Television, also known as LPTV. These are TV broadcast stations with strange callsigns like freaked-out ham calls (K44CK, W52AY, W07CD, etc.). They run low power (10 watt maximum on VHF, 1 kW maximum on UHF) on regular TV channels, and you almost never see their skeds listed in the news media.

There are 201 LPTV stations on VHF channels, plus 694 on UHF channels. These stations often originate their own programming and, despite their power restrictions, have signals that cover reasonably wide areas. They serve many community needs and have many strong supporters.

The FCC created LPTV as a secondary service to regular full service TV stations. Their secondary status means that a full service TV station can obtain an FCC license for operation on the same channel and in the same city where an LPTV station is licensed, and the LPTV station is then required to vacate that channel. Many LPTV stations are in metro or suburban areas, but some exist in communities where there is little likelihood that a full service TV station will be built in the foreseeable future.

LPTV stations complain, however, that their distinctive oddball callsigns and being called "low power" are undesirable distinguishing features that set them so far apart from mainstream TV that it works to their disadvantage. Mostly, the general public and news media doesn't quite know what to make of the stations, suspecting that "low lower" means "inadequate power," as it would in a car engine.

LPTV stations that originate their own programming have requested the FCC replace their strange alphanumeric call letters with four and six letter types similar to those assigned to full power TV stations. They also ask that the FCC discontinue the use of the term "low power" with reference to them, and instead, use the term "community television" for their category of station. In addition, they'd like to run higher power, pointing out that so long as they don't cause interference to other TV stations they should be permitted to improve and increase their service to their local communities. They did not request a change in their secondary service status.

Still, the National Association of Broadcasters (NAB) came out against FCC approval of such changes on the grounds that the requests constituted a "thinly veiled attempt" to upgrade LPTV stations to full service TV stations.

Thusfar, the FCC has made no decision.

A Little DAB'll Do Ya': The way it looks now, Digital Audio Broadcasting (DAB) will end up in the L-band (around 1500 MHz) and/or the S-band (around 2000 MHz). It should be finalized next February at the World Administrative Radio Conference (WARC), which takes place in Barcelona, Spain. The FCC backs the L-band, and says that at least 60 MHz of spectrum will have to be allocated for DAB. If it can't all come from the L-band, then some space in the S-band may be used to fill in.

That's our column for this time. Please let us hear from you with AM/FM broadcast news clippings, station photos, station decals, bumper stickers, recent AM/FM QSL's, and your comments regarding AM/FM broadcasters. ■

New FM Call Letters Issued

KCCA	Colorado City, AZ
KFSL	Halletsville, TX
KGLP	Gallup, NM
KKZN	New Iberia, LA
KONI	Lanai City, LA
KRSI	Saipan, MO
KRUA	Anchorage, AK
KSHL	Glenden Beach, OR
KXGV	Victorville, CA
KXGY	Savanna, MO
KXGZ	McAllen, TX
KXIY	Cuba, MO
KYTN	Wrightsville, AR
KZDA	Gregory, TX
KZBD	Byng, OK
KZDC	Willard, MO
KZDD	Quincy, MO
WAGX	Manchester, OH
WBEY	California, MD
WCJX	Five Points, FL
WGRS	Guilford, CT
WHWE	Howe, IN
WISM-FM	Altoona, WI
WJJN	Dothan, AL
WMMM-FM	Verona, WI
WSBL	Selbeyville, DE
WSLD	Whitewater, WI
WXKI	Moulton, AL
WXQZ	Canton, NY
WYFY	Fisher, WV
WZJN	Jackson, NH
WZJO	Ocean Pines, MD
WZJP	Spencer, TN
WZJQ	McClellanville, SC

Changed FM Call Letters

Now	Was	
KICA-FM	KLZK	Farwell, TX
KLZZ	KXGP	Deer River, MN
KMGC	KNAN	Monroe, LA
KPOS-FM	KNKC	Post, TX
KRVV	KMYQ-FM	Bastrop, LA
KSGC	KRBZ	Tusayan, AZ
KUTQ	KLVV	Bountiful, UT
KYYT	KZPC	Goldendale, WA
WATB	WVCR	S. Yarmouth, MA
WBTI	WYDG	Lexington, MI
WBYW	WEHB	Grand Rapids, MI
WEZV-FM	WKJM	Monticello, IN
WGLV	WFVA	Hartfort, VT
WGTK	WCVM	Middlebury, VT
WJWF-FM	WZIX	Artesia, MS
WJJO	WTFX	Watertown, WI
WKGK	WELS-FM	Kinston, NS
WKZF	WJCS	Bayboro, NC
WLTQ	WWRB	Pittston, PA
WMXU	WKYJ	Starkville, MS
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SATELLITE VIEW

BY DONALD E. DICKERSON, N9CUE

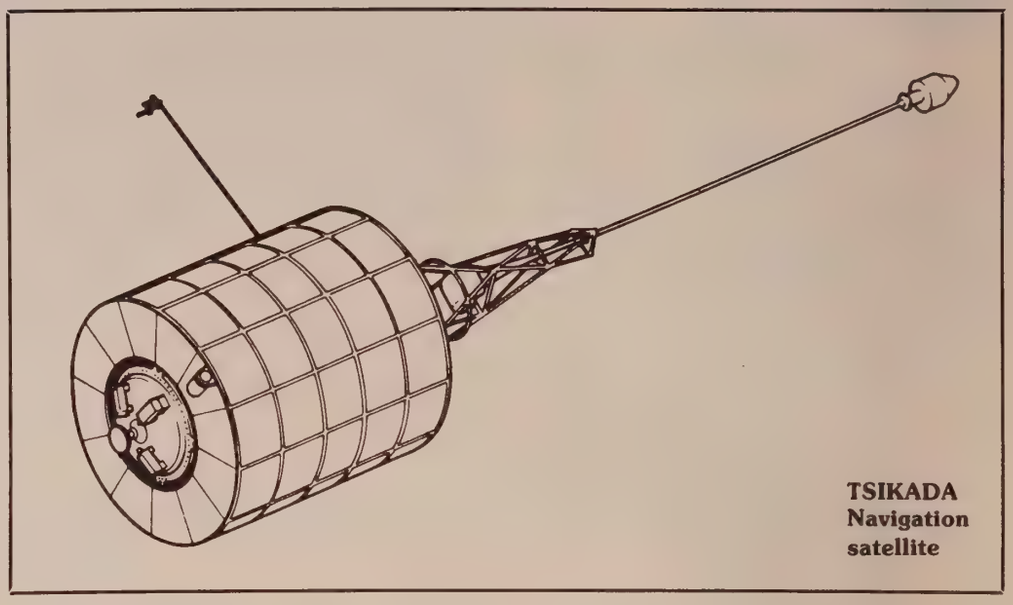
INSIDE THE WORLD OF SATELLITE COMMUNICATIONS

DOSAAF

DOSAAF is a Soviet acronym for the Voluntary Society for Assistance to the Soviet Armed Forces. This para-military support organization is controlled by the Army. It uses so-called volunteers (who may more accurately be called Reservists) from Technical Institutes and Universities in support of military and Amateur Radio Satellites systems. This military organization has a civilian section called the Scientific Space Technology Research Laboratory. The laboratory, which is overseen by two Army officers, manages the Moscow Radio Club, and more importantly, the ground control stations for the Soviet Amateur Space Program. This station (which uses the callsign, RS3A) actually controls the satellites in orbit, monitors its conditions and performance. The radio operators or telecommunications specialists who work at the station upload telemetry codes to the spacecraft. They switch operational modes between various transponders and download the Robot QSL information. This lab also operates as a PR office for the Amateur programs operated by the USSR. Leo Labutin, known to many US Amateurs, works out of this office. Leo (UA3CR) was responsible for HF and Satellite communications used on Ski-Trek, an arctic expedition. He also worked tirelessly to get an Amateur station operational on board the Mir Space Complex.

The civilian DOSAAF lab employs some two dozen people. This includes radio operators, electronic technicians and clerical assistants. The techs work on other specialized systems throughout Moscow as needed. This includes military, broadcast and sport facilities. Leo Labutin manages this staff. He has three radio operators working at the satellite control station. Two of the operators are licensed Amateurs, RA3AT and UA3DSP. The Third is Andrey Mironov. He can be heard on HF, Packet or the Amateur satellite bands using the callsign RS3A. Each operator works a rotating shift of 24 consecutive hours followed by 48 hours off, similar to the shifts firefighters work in the US.

The DOSAAF control station in Moscow controls three Amateur satellites currently, RS-10/11, RS-12/13 and RS-13/14. RS stands for Radio Sputnik, then the satellites are numbered sequentially. RS-10/11 and RS-12/13 are multi-transponder packages which are carried by a host spacecraft. In



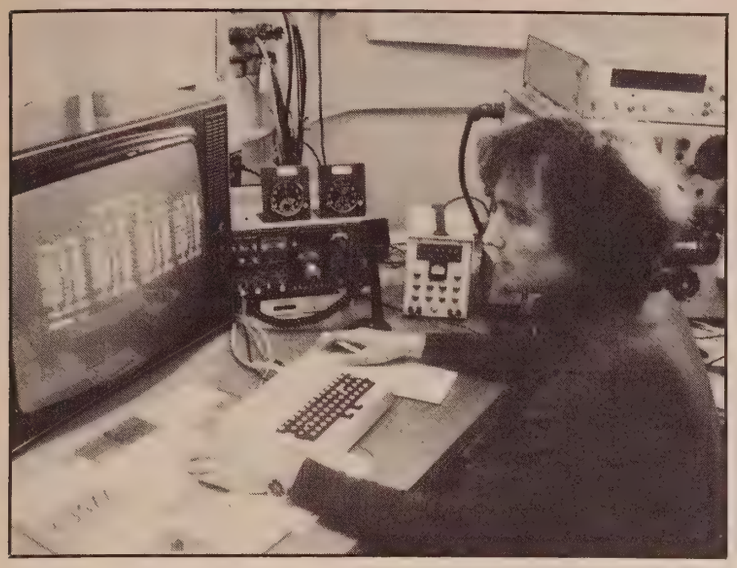
TSIKADA Navigation satellite

Satellite Command Control Functions

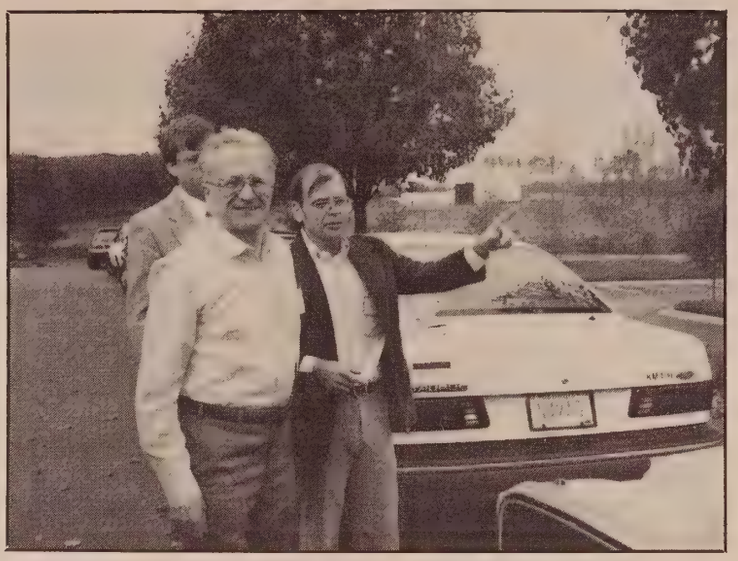
Switch each transponder on/off separately
Adjust transponder receivers sensitivity
Adjust receivers IF bandwidths
Switch each Robot on/off
Switch Robot RF output power hi/low
Adjust transponder RF output
Download digital telemetry
Downloading of all memory data
Downloading Robot memory
Erasing memory
Adjust Robot receiver sensitivity
Switching the Bulletin Board Systems (Upload/Download/Power/Sensitivity)

Leo, RA3AT, at satellite control console. Photo by Danny Kohn, SM0NBY. Courtesy AMSAT-SM/UK.

Geoffery Perry, Arthur and Leo Labutin, UA3CR, after first radio contact with Mir at 88 Amsat convention.



Andrey Mironov, RS3A, downloads Robot memory.



Leo Labutin, UA3CR, and Martin Davidoff of University of Surry.

this case, this host is the Tsikada navigation satellite as shown in illustration. RS-14 is a data mode satellite using the format called RUDAK. This spacecraft, or more accurately, transponder, is carried by a Geological research satellite with a design similar to that of the Meteor satellite shown.

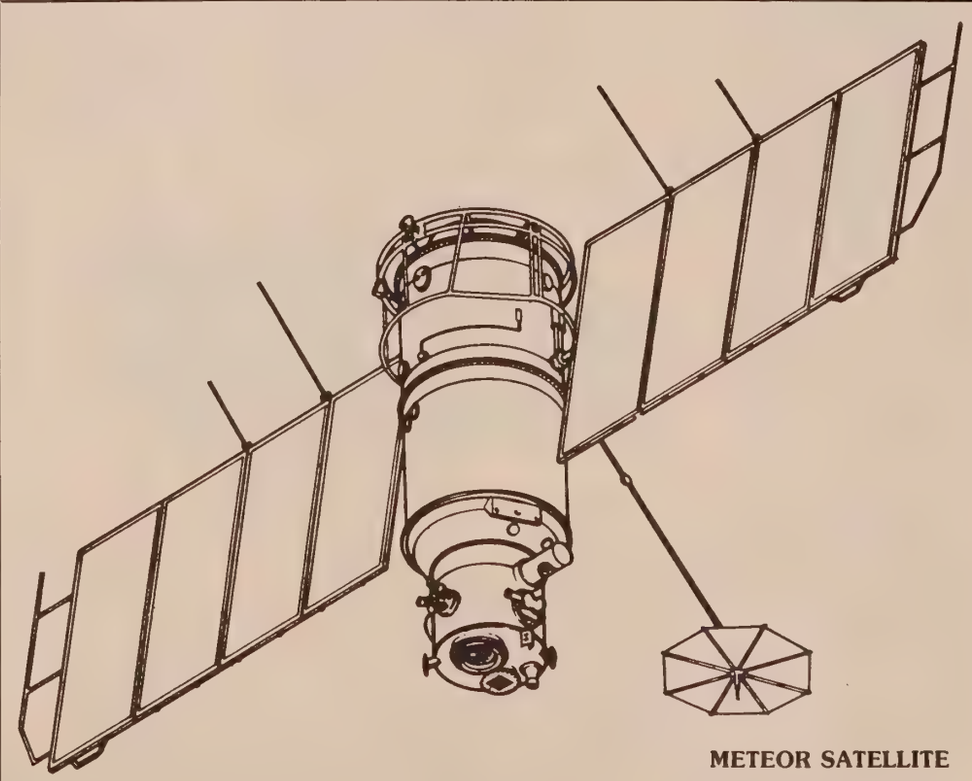
The ground station uses four 10 meter yagi antennas, one pointed at each of the four corners of the earth. This gives them plenty of downlink signal to work with as the satellites have an eight watt RF output, high by amateur standards. Moscow uses a single 2 meter two element twist for uplink. As errors in uplink cannot be tolerated, a twist antenna is used to keep the uplink signal from dipping or fading as the spacecraft turns (thereby changing the polarity as most spacecraft use spin stabilization).

Most of the equipment at the Moscow control station has been fabricated by members of DOSAAF. This includes three satellite control consoles, two analog and one digital. According to a recent article in AMSAT-UK's publication *OSCAR NEWS*, written by Pat Gowen (G3IOR), the station can control some 20 satellite functions. I have listed these functions below. This, of course, does not include the classified engineering telemetry, etc. Pat Gowen's article further states that Leo Labutin designed and built a computer system based on the 8085 chip and made entirely of Soviet components. The computer, known as the Radio 86 PK, has become a standard for Packet radio in the USSR. The suitcase-sized portable version of this system was used on Ski-Trek, for controlling the RS fleet of satellites from remote locations as well as other applications.

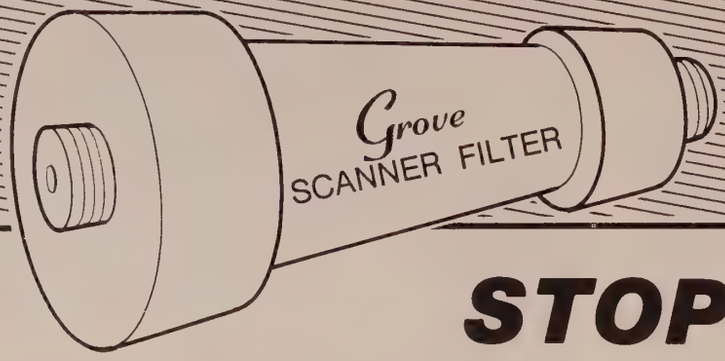
Satellite tracking at the RS3A ground station is accomplished with the help of an IBM clone and Quick-track software. Downloading QSL information from the spacecraft is done with the Radio 86 PK. The information can be displayed on a CRT, or a printer can be used to make a hard copy. I have in-

PROMOTR INFORMACII
RS-11 Bort-Vurnal Robota

Call QSO Band	Call QSO Band	Call QSO Band	Call QSO Band
W8VXJ 76 145	W8VXJ 77 145	UA4NDX 78 145	UL7GAN 79 145
UL7GAN 80 145	UA0LEN 81 145	W8VXJ 82 145	W8VXH 83 145
RB5IRF 84 145	RB5IRF 85 145	RB5IRF 86 145	RB5IRF 87 145
RB5IRF 88 145	RB5IRF 89 145	RS3A 90 145	RB5IRF 91 145
UM8MU 92 145	W8VXJ 93 145	W8VXJ 94 145	UA3XAV 95 21
UA3XAV 96 21	UA3XAV 97 21	UA3DXAV 98 21	UA3XAV 99 21
UA3XAV 00 21	UA3XAV 01 21	UA3XAV 02 21	RS3A 03 145
RS3A 04 145	UA9CG 05 145	RS3A 06 145	RS3A 07 145
OV			



METEOR SATELLITE



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CIRCLE 122 ON READER SERVICE CARD

cluded a sample of QSL information from the printer.

We can thank Leo Labutin and Cosmonaut Musa Manarov (U2MIR) for the Amateur Radio station that is now onboard the Mir Space Complex. After Musa installed the transceiver, he put a ground plane antenna on the outside of the station during an EVA to work on the solar panels. Leo decided to unveil the station at the 1988 AMSAT convention in Atlanta, GA. The first contact made with Mir outside of the USSR, was made at the '88 convention. This was a very nice, and definitely a diplomatic gesture for Leo's first trip to the US. Since that time Leo has established an AMSAT branch in the USSR known as AMSAT-U. He has also enlisted the cooperation of the East Bloc and Baltic states in joint space projects. RS-14 is just such a project. It was constructed with the help of the AMSAT organizations in Munich, Germany and the AMSAT-U Orbita radio club in Molodechno (near Minsk).

Soviet relations with the West have changed dramatically during the Gorbachev era. It's nice to see that the Amateur space programs of both the US and USSR have had their small part to play in these unprecedented changes toward openness and cooperation. The future will, hopefully, see more opportunities for cooperation in joint East/West space projects for both the Amateur and Manned Space programs.

See you next month. ■

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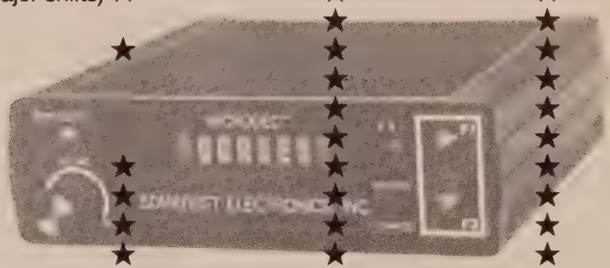

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LISTENING POST

BY GERRY L. DEXTER

WHAT'S HAPPENING: INTERNATIONAL SHORTWAVE BROADCASTING BANDS

Don't be surprised if you can't find English broadcasts to North America from Kol Israel any longer. Word was that the station planned drastic cuts in its shortwave service—something like 50—which would include discontinuing the several evening English segments directed our way. Broadcasts in Hungarian, Romanian and Portuguese were also dropped. Savings from these cuts were to be used to expand domestic broadcasting. If all this does happen, it's not hard to imagine there'll be a big hue and cry raised, and we should all be part of it.

"Vedo," is the name of a new Soviet station now on the air. The station is reported to be a combined effort of Soviet journalists and communications workers and intends to serve the interests of the various nationalities living between the Volga and Don rivers. The schedule, believe it or not, will include religious programming and programs from Deutsche Welle and the Voice of America! The station, based in Volgograd, is one of the new independent Soviet broadcasters and plans eventually to be on the air 20 hours a day. It's said to operate in the 42 and 50 meter bands, but we've seen no specific frequencies or time schedule yet.

Here's another example of how raising a stink over the loss of a shortwave service can sometimes work. A month or two back we reported the shortwave demise of RTBF, the Belgian French language overseas service. It has returned, relaying the domestic first network, in French. You can hear it from 0500-0630 on 7140 and 17680, 1100-1130 on 9925 and 25645 and 1600-1715 on 15540 and 17675.

Apparently, the Voice of America doesn't plan to rebuild its Liberian relay station. Instead, shortwave will be added to the VOA mediumwave relay at Selebi-Phikwe, in Botswana. No word on how soon this will be on the air, though.

There's finally been a positive ID on an out-of-band Colombian which showed up earlier this year. It's Ecos Celestialles, a religious broadcaster in Medellin, operating from 0945-1200 and 0145-0400 on 5535. Reports can be sent to Apartado Aereo 8447, Medellin.

QSL collectors may want to log and report Radio Rica, the newish Nicaraguan which operates around 4900 (it's been known to go as high as 4928). In addition to a letter QSL, the station is sending a Radio Rica t-shirt.

Also in Central America, Sani Radio in Honduras, which had been missing from its 4755 frequency for sometime, has now turned up on 6299 and is being noted in the mornings around and evenings around 0000.

It looks as though out-of-reach Tristan Radio is now totally, completely, eternally out of reach. Word is that the station is closing down their 40 watt shortwave transmitter and will use FM instead.

Roger Johnson, Covina, CA has a wide assortment of receivers to play with.

Another station which has been off the air for sometime looks like it just might remain silent. *DX Ontario* reports DX'er Gordon Darling visited the Marshall Islands and says he saw no signs of any shortwave antennas at WSZO there. In the past, the station has said that it hoped to return to shortwave.

Another place that hasn't had a shortwave voice in sometime is represented again. The Guyana Broadcasting Corporation is back on the air. It's a rather tough log, plagued by QRM, but a few DX'ers are digging this one out around 0800 on 5950.

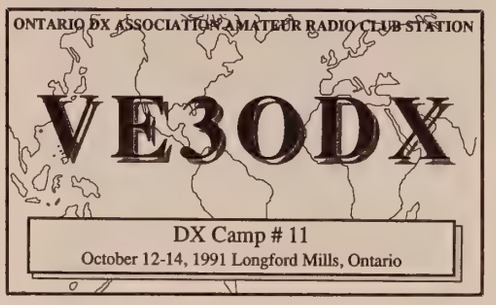
Don't look for High Adventure Ministries (Voice of Hope, KVOH) to be on the air from Guam with its KHBN anytime soon. They're involved in a dispute over who owns title to the land they'd planned to use for the station and now may end up having to build elsewhere on the island.

English broadcasts from the Voice of the UAE, Abu Dhabi, which were discontinued around the time of the Gulf War, have been resumed. Check between 2200-0000 on 13605, 15305 and 17855.

DX TOOL: The 19th edition of the Danish Shortwave Clubs International's *Tropical Bands Survey* has been published. If you do any DX'ing in the lands below 5900 this 24 page booklet is an almost indispensable guide. It lists all active stations between 2000 and 5900, by frequency, with their operating schedules, powers and other info. The TBS is available via airmail for 9 IRCs from Bent Nielsen, Betty Nansens Alle 49, 1tv, DK-2000 Fredericksberg, Denmark.

October 12-14 is Thanksgiving Weekend in Canada and VE3ODX, the ham station of the Ontario DX Association, will be on the air from site of the Ontario Educational Leadership Center on Lake Couchiching. Operations will be on 10 through 80 meters, special QSL's will be issued to those who heard or worked the station. Reports to VE3ODX, PO Box 161, Station A, Willowdale, ON M2N 5S8, Canada.

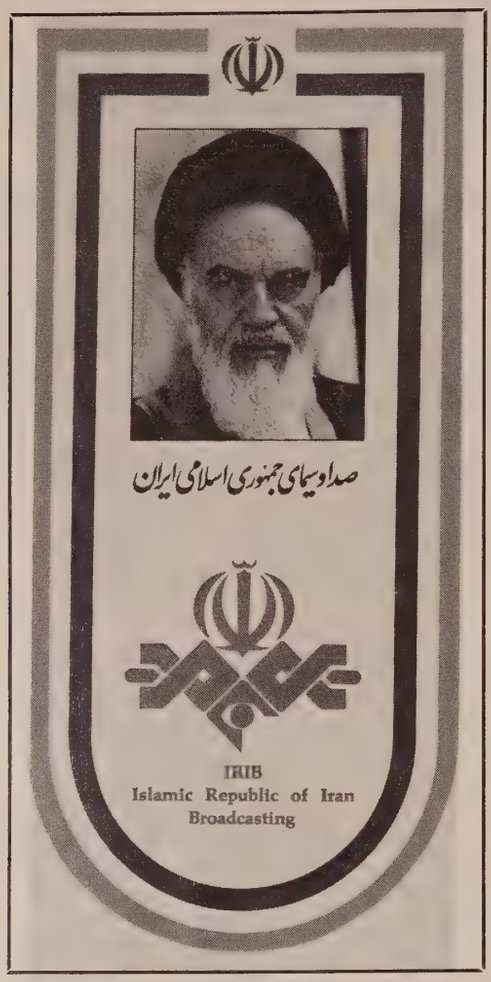
MAILCALL: Thanks to Don Lacroix in Woonsocket, Rhode Island for sending his shack photo. He's using a DX-302 for shortwave and a PRO-2006 scanner.



Here's the special QSL of VE3ODX, the ham station of the Ontario DX Association. ODXA is Canada's largest DX club.

Here's Pennsylvania listener Bob Rizzo, Jr., in his shack in the city of Hazelton.

Here's the neat monitoring post of Don Lacroix, Woonsocket, RI. Everything's handy, including Bart Simpson!



Ol' Smiley still graces the QSL cards of the Voice of the Islamic Republic of Iran. (Thanks—Anthony Santora)

Anthony Santora is happy with a QSL from Syria which arrived at his Trumbull, Connecticut mailbox. He also got two replies from the Voice of the Islamic Republic of Iran. Thanks for sharing your spare with us, Tony!

Eduoard S. Provencher in Biddeford, Maine is pleased with recent logs on Radio New Zealand, Radio Nacional de Paraguay, ICRC-Geneva, Radio Kiev, All India Radio and Bayerischer Rundfunk, Germany.

Mrs. Carol J. Serraon of Rome, Georgia wonders what percentage of SWL's are female. The percentage may not be very high but there seems to be an increasing number involved with shortwave. Carol says she's been listening for four years, using an old Zenith Trans Oceanic. She hopes to upgrade before long and promises to send in her logs one of these days.

Don Hallenback of Pittsfield, Maine wonders about Radio Marti and Radio Miami International. Any connection? Radio Miami International, while it waits to get a license to operate, is airing programs over WRNO, WHRI and WWCR. Most are Spanish language anti-Castro segments produced by various Cuban exile groups. It may be, Dan, that you heard references to Cuban hero Marti on one of these. We have no information that the U.S. Government's Radio Marti is connected to any of this and strongly doubt it would be.

Thanks to Bob Rizzo, Jr., in Hazelton, Pennsylvania for sending in his shack photo. Bob has been SWL'ing for a couple of years now and says that during that time, "I've never had a dull moment."

Alan B. Scholl lives on the Caribbean island of Antigua and works as a computer consultant. He's recently gotten back into SWL'ing and says Antigua seems to be a good location. Alan would like to contact other SWL's in his part of the world and invites letters to PO Box 252, St. John's, Antigua, West Indies.

Thanks to Roger M. Johnson for his shack photo. Roger lives in Covina, California and has a wide variety of shortwave and scanner radios and accessories.

John Helis of River Ridge, Pennsylvania wonders about a commercial he hears on shortwave, advertising a very low priced shortwave radio (and claiming all sorts of wonderful results, of course). We don't know of this brand, Jon. Just remember that shortwave radios are like everything else in one respect—you get what you pay for!

WRITE US!: Make it a point to make contact regularly! We look for your loggings, comments, questions, shack photos, spare QSL's for use as illustrations, station schedules and other literature, news clippings and so on. Loggings should be by country with space between each item and your last name and station abbreviation after each one. Let's hear from you often.

Here are this month's logs. Broadcast language is English unless indicated otherwise (SS = Spanish, AA = Arabic, etc). All times are UTC.

Abbreviation Used in Listening Post

AA	**Arabic**
BC	**Broadcasting**
CC	**Chinese**
EE	**English**
FF	**French**
GG	**German**
ID	**Identification**
IS	**Interval Signal**
JJ	**Japanese**
mx	**Music**
NA	**North America**
nx	**News**
OM	**Male**
pgm	**Program**
PP	**Portuguese**
RR	**Russian**
rx	**Religion/ious**
SA	**South America/n**
SS	**Spanish**
UTC	**Coordinated Universal Time (ex-GMT)**
v	**Frequency varies**
w/	**With**
WX	**Weather**
YL	**Female**
//	**Parallel frequencies**

SWBC Loggings

Albania: Radio Tirana, 9580 at 0232 with features, news. (Carson, OK)

Antigua: Deutsche Welle relay, 15410 at 2315 in GG. (Zamora, CA)

Radio Continental, 9115 sideband, in SS at 0146. (Caballero, Mexico)

Ascension Island: BBC Relay 6005//15260 with opera at 0134. (Carson, OK) 21660 at 1425 with soccer. (Zamora, CA)

Australia: Radio Australia, 9580//11720 at 1340; 9770//12000 at 1328, into Vietnamese 1330; 17715 at 0500. (Carson, OK) 11910 at 1620 and 13605 at 1640. (Zamora, CA) 11930, Brandon site, 1110 with music and talk. (Barr, IL) 0725 with ID, music, ID and frequencies. (Gasque, SC) 15365 at 0620 to Pacific Islands. (Caballero, Mexico)

ABC, VLQ9 9660 at 1215 with news. (Northrup, MO)

Austria: Radio Austria International, 6015 (via Canada, editor) at 0530. (Pellicciari, CT)

Belgium: BRT, 13720 at 2330 with news and listener's letters. (Pellicciari, CT) 21810 at 1740 in FF. (Provencher, ME) 1134. (Liagas, Greece)

Brazil: Radiobras, 9890 at 2355 in SS. (Liagas, Greece)

Radio Brazil Central, 11815 in PP at 0847 with ID and music with more IDs at 0850 and 0853. (Gasque, SC)

Radio Universo, 9565, speeches in front of a crowd.ID 0959. (Gasque, SC) (really SS and PP? editor)

Radio Gaucha, 11915 in PP with IDs at 0800, 0803, pronounced "Ga-oo-cha," music, possible news. (Gasque, SC)

Bulgaria: Radio Sofia, 11660 at 1805 in GG, 11700 at 1200.

Horizon service on 7670 (Stolnik site, editor) at 2108 and 11660 at 1029. (Liagas, Greece) (Bulgarian, editor)

Cameroon: CRTV, Douala, 4795 at 2030 in FF, also Yaounde, 4850 in FF. (Liagas, Greece)

Canada: Radio Canada International,, 9755 at 2330. (Caballero, Mexico) 11940 at 0085 in SS, into EE 0100. (Carson, OK) 17820 to Africa, into FF at 1900. (Zamora, CA)

CFRX, Toronto, 6070 at 0603 news, traffic, weather. (Carson, OK)

CKZN, St. John's 6160 at 1200 with news. (Foss, AK)

Chad: RNT 4906 (nominal 4904.5, editor) in local dialect and news in FF at 2200. (Liagas, Greece)

China: Radio Beijing, 5850 at 1143 in—Mongolian? (Foss, AK) 11815 at 1536 with current affairs program. (Zamora, CA)

Colombia: Radio Nacional, 11820 in SS with EE ID at 2000. (Vaage, CA)

Costa Rica: Radio For Peace International, 7375 at 0215 with mailbag program. (Carson, OK)

Cuba: Radio Havana, 11760 at 0423 with Cuban music "Playlist," world news at 0430. Also 11950 at-0000 sign on. (Carson, OK)

Cyprus: Cyprus Broadcasting Corporation 7205//9735//11795 at 2224 in Greek to the United Kingdom. (Liagas, Greece)

BBC via Cyprus relay, 6195//7145 at 2154. (Liagas, Greece)

Denmark: Radio Denmark, 21705, via Norway, 30 minute repeat transmissions on the half hour between 1330-2300 in DD with EE ID generally at sign on and sign off. (Vaage, CA)

Ecuador: HCJB, 9745//15155 at 0043, "DX Party Line." (Carson, OK) 17790//25950SSB at 1900. (Provencher, ME) 25950 in SS at 1600. (Vaage, CA) 21455 at 1330, SSB. (Caballero, Mexico)

Esculas Radiofonicas, 5012 in SS and Quechua, ID 0926, Quechua type music. (Gasque, SC)

HD2IOA time station, 7600 at 0428 with pips, man with ID in SS. Best on lower sideband. (Barr, IL)

Egypt: Radio Cairo, 9475 at 0224 with discussion, ID, frequency announcement. (Carson, OK) 9900 at 2205 in EE and 12050 in AA at 0600. (Liagas, Greece)

England: BBC, 9635 at 0730. (Carson, OK) 9740 at 1605. (Vaage, CA)

Finland: Radio Finland, 15400//21550 at 1335 with news, "Northern Report." (Carson, OK)

France: Radio France International, 11695 at 1329 with discussion. (Carson, OK)

French Guiana: Radio France relay, 21620//21645 with ID and music and FF. (Zamora, CA)

RFO Guyane, 5056 in FF at 0605 with possible news, alternating man/woman announcers to past 06017. (Gasque, CT)

Germany: Bayerischer Rundfunk, Munich, 6085 in GG at 0245, German and American music. DW on frequency from 0300. (Provencher, ME)

Deutsche Welle, 9670 at 0500. (Pellicciari, CT) 21650 in Pashtu via Sri Lanka relay. EE ID. (Provencher, ME)

Ghana: GBC, 3367, 2220 to 2345. ID 2300 "This is the overseas service of Radio Ghana" and off. Also 4915 at 2000. (Liagas, Greece) 0600 with news, drumbeat IS. (Pellicciari, CT)

Greece: Macedonian Radio, Thessaloniki, 1725 in Greek on 7430//9495//9935//15595. (Liagas, Greece)

Guam: KTWR, Trans World Radio, 9785 at 1305. (Northrup, MO) 1330 sign on, into Vietnamese. (Zamora, CA) 11580 at 2105 in CC, 11650 in EE at 1545 anbd 11700 at 1500 in CC. (Liagas, Greece) 11805 with IS at 0857 (seemed synthesized bells), ID 0900, religious program. (Gasque, SC)

Guatemala: Radio Cultural/TGNA on 3300 at 0221 with "Back to the Bible," ID, mention of QSLs, more religious programming. (Carson, OK) 0330 in SS. (Caballero, Mexico)

Honduras: La Voz Evangelica, 4820 at 0434 with SS religious program. (Caballero, Mexico)

Hong Kong: BBC relay, 17830 at 2340. (Foss, AK)

Hungary: Radio Budapest, 6110 at 1850; 9895 at 2338. (Liagas, Greece) 11910 at 0030. (Pellicciari, CT) 0050 with folk music to IS and close at 0056. (Carson, OK)

India: All India Radio, 11620 at 2145 with news and commentary. (Provencher, ME) 15115 in Hindi at 2335 and 15165 in Urdu at 2339. (Liagas, Greece)

Israel: Kol Israel, 11604 at 0026 in EE/SS with ID, frequencies, interval signal and off. 15640 at 2315. (Carson, OK)

Italy: RAI, 11800 with IS, sign on, into news. Into FF at 0120. (Carson, OK)

Japan: Radio Japan, 11865 at 1541 with Japanese language lessons, commentary. (Zamora, CA) 15325, via French Guiana, with news. (Provencher, ME) 2135 to close at 2200. (Caballero, Mexico) 17810 at 0337. (Foss, AK) 17825 at 0516. (Carson, OK)

Lebanon: Voice of Hope, 6280 at 1915, "Operation Desert Hope." (Liagas, Greece)

Mali: RTV Malienne, 4783 at 0620 with announcements in FF and other languages, ID. (Pellicciari, CT) 4835 at 2000. (Liagas, Greece) 5995 at 0630 in FF and vernaculars. ID 0633, 0639. (Gasque, SC)

Malta: Voice of Mediterranean, 11925 at 1420-1500, mostly EE, some FF and Italian. Oldies music. (Liagas, Greece)

Mauritania: ORTM on 4845 at 0630, AA with chants. (Pellicciari, CT)

Mexico: Radio UNAM, 9600 at 2310 in SS with news. (Caballero, Mexico)

Radio Mil, 6010 with 1200 sign on in SS. (Caballero, Mexico)

Radio Educacion, 6185, SS with vocal groups at 0940, numerous IDs at 0950-0956, more music. (Gasque, SC)

Monaco: Trans World Radio, 9480 with IS and sign on at 0940, into religious programs. (Carson, OK)

Netherlands Antilles: Radio Netherlands Bonaire relay, 15560 upper sideband at 0050. (Carson, OK)

Trans World Radio, Bonaire, 11815//15345 with news at 1300. (Carson, OK)

New Zealand: Radio New Zealand International, 17770 at 0034 with New Zealand news. (Zamora, CA) 0200 with music, sports news. (Provencher, ME) 0606 with news, weather and into island languages news programs. (Carson, OK)

Niger: RTV Niger, 5020 at 2220 in FF with English songs. 2300 close. (Liagas, Greece)

Nigeria: Voice of Nigeria, 7255 at 0500 with news, music, economic report. (Pellicciari, CT) 0530 with news. (Caballero, Mexico) 0545. (Carson, OK)

Radio Nigeria, Lagos, 4990 at 2115. (Liagas, Greece)

Radio Nigeria, Kaduna, 4770 with news at 0515. (Gasque, SC)

Northern Marianas: KHBI, 11580 at 1723, Christian Science programming. (Liagas, Greece) 13625 at 1330 with news. (Zamora, CA)

KSDA, 11980 at 1348 in Japanese. (Liagas, Greece)

North Korea: Radio Pyongyang, 6560 at 1215 with music. (Northrup, MO) 9977 at 1100 with IS, ID by man, woman. (Barr, IL) 15115 at 0032. (Carson, OK)

Norway: Radio Norway, 21705 with 30 minute repeat transmissions on the hour, 1300-2230 in NN with EE ID generally at sign on and sign off. (Vaage, CA)

Pakistan: Radio Pakistan, 7010 in URDU AT 1800, "Yo Radio Pakistan he." 15606//17666 at 9120 in Urdu, 21520 in EE at 0805. (Liagas, Greece)

Paraguay: Radio Nacional, 6024.8 at 2330-2321 with multiple SS IDs, ID jingle at 2324. Trampled by Radio Netherlands sign on at 2337. (Gasque, SC) 9735 at 0030 in SS, news and commentary. (Provencher, ME)

Phillippines: VOA relay, 15155 at 1214 with news. (Barr, IL) 17820 at 2310 with "VOA Monday Morning." (Foss, AK) 15290 at 2230 in special English. (Liagas, Greece)

Portugal: Radio Portugal, 9555 at 0230. (Provecher, ME) 11840 at 0000 in PP, talk, brief music, more talk. (Carson, OK)

Poland: Radio Polonia, 7285 in Romanian at 2130, 9525 at 1305 in FF. (Liagas, Greece)

Romania: Radio Romania International, 11940 at 0415 with commentary, talk of broadcasting in Romania. (Carson, OK)

Saudi Arabia: BSKSA presumed, 9925 at 2300 in AA, radio play 2305. Also 21495 at 0702 with Koran. (Liagas, Greece)

Senegal: Radiodifusion du Senegal, 4890 at 0625 in FF with ID. (Pellicciari, CT)

South Korea: Radio Korea, 7550 in Korean at 2040, 15575 in PP at 1942, RR at 2000. (Liagas, Greece)

Spain: Spanish National Radio, 9630 at 0500. (Pellicciari, CT) 11880 at 0008. (Carson, OK) 15110 at 2100 in SS, 17870 in SS at 2225. (Caballero, Mexico)

Sri Lanka: Sri Lanka Broadcasting, 15120 at 2150 with ID "This is the external service of the SLBC." (Liagas, Greece)

Switzerland: Swiss Radio International, 9885/ /12035 at 0200. (Vaage, CA) 12035 at 0400. (Caballero, Mexico) 21695 to Southeast Asia and Indian subcontinent at 1326. (Zamora, CA)

International Red Cross station, 9885 at 0310 with news of Red Cross activities. (Provencher, ME)

Syria: Radio Damascus, 9950 at 2300 in AA, 12085 at 1505 in AA. (Liagas, Greece)

Tahiti: Radio Tahiti, 11827 in FF with local music at 0830, some jazz, phone conversation. (Gasque, SC)

Taiwan: WYFR via Taiwan, 5275 at 1139 in CC. (Foss, AK)

Togo: RTT, Lome, 5046.8 in FF with ID 2301, music, ID, music. (Gasque, SC)

Tunisia: RTT, Tunis, 11550//15050 in AA at 1600, 11905 at 1958 in AA, 17500 at 1100 in AA. (Liagas, Greece)

Turkey: Voice of Turkey, 5980 in TT at 2023, 9460//11925 in TT at 0823. (Liagas, Greece) 9445 at 0300 with IS, sign on, news. (Carson, OK)

Turkish Meterological Station, 6900 in TT at 1320. (Liagas, Greece)

Turkish Police Radio, 7370 at 1342 in Turkish. (Liagas, Greece)

Ukraine: Radio Kiev, 4940 at 2030 in Ukrainian. (Liagas, Greece)

United Arab Emirates: Voice of the UAE, Abu Dhabi, 17855 at 2210. Koran and relay of Capital Radio (local FM), UAE news on the hour. (Barr, IL) 2318. (Carson, OK)

UAE Radio, Dubai, 21605 at 1639, into AA 1640. (Vaage, CA)

United States: WWCR, 7520 at 0530 with Dr. Gene Scott. (Pellicciari, CT)

WINB, Red Lion, PA, 15145 at 0210 with golden oldies. (Provencher, CT)

USSR: Radio Moscow, 11655 at 1328 in possible RR, ID "Radio Moscu," possible news. (Carson, OK) 11995 at 1728, ID and news brief 1730. (Zamora, CA)

Magadan Radio, 5940 at 1112 in RR with music. (Foss, AK)

Radio Tikhiy Okean in RR at 1115 on 4050. (Foss, AK)

Vatican: Vatican Radio, 7305 at 0350 with news in SS. (Caballero, Mexico)

Venezuela: Radio Rumbos, 4970 at 0418 with sports in SS. (Caballero, Mexico)

Vietnam: Voice of Vietnama, 9840//15010 at 1800 and 1900 in EE, 15101 in VV at 1745. (Liagas, Greece)

Yugoslavia: Radio Yugoslavia, 7220 at 1722 in Greek, 117356 in EE at 12115.

Zambia: Radio Zambia, tentative, 17895 at 1911 in EE but very weak. (Barr, IL)

Hats off and thanks to the following reporters this month:

Larry R. Zamora, Highland, CA; David A. Gasque, Orangeburg, SC; Marty Foss, Pitkas Point, AK; Bjorn F. Vaage, Granada Hills, CA; Steve Pellicciari, Norwalk, CT; Mark A. Northrup, Gladstone, MO; Manuel F. Callabero S., Monterrey, Mexico; Edouard S. Provencher, Biddeford, ME; John Spenser Carson, Jr., Norman, OK, Peter B. Barr, Des Plaines, IL and Zacharias Liagas, Thessaloniki, Greece.

Thanks to all and, until next month good listening! ■

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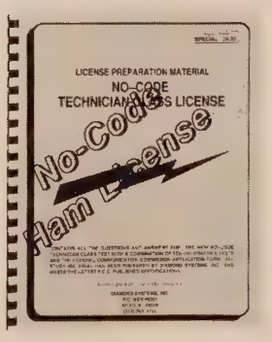

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CIRCLE 141 ON READER SERVICE CARD

WASHINGTON PULSE

FCC ACTIONS AFFECTING COMMUNICATIONS

FCC Shuts Down Cable System For Excessive Signal Leakage

The Federal Communications Commission's Kansas City Office, issued a cease operations order to Perry Cablevision in Perry, Kansas. The cease operations order was issued as a result of an inspection of the cable system. During the inspection, the cable system was found to have signal leakage in excess of the Commission's standards.

Cable television is a closed circuit (nonradiating) system using the same radio frequencies as various radio services including the aeronautical service. Signal leaks (system radiation) which cause a system to exceed the Cumulative Leakage Index (CLI) as set forth in Section 76.611 of the Commission's Rules, present potentially harmful interference to aeronautical communications in the frequency bands 108-137 and 225-400 MHz.

Perry Cable immediately complied with the order by shutting down operations until it complied with the Commission's standards for signal leakage.

Frequency Coordination Requirements For Secondary Fixed Use Of 450-470 MHz Band Proposed

The Commission proposed amending the rules to modify the frequency coordination requirements for the secondary fixed use of frequencies in the 450-470 MHz band. Specifically, it proposed amending the rules to provide that use of frequencies in the 450-470 MHz band for secondary fixed purposes will require coordination only by the certified coordinator for the radio service in which the applicant is eligible (the "home" coordinator).

The Commission also proposed amending the rules to make available the 450-470 MHz frequencies to "in-service" eligibles for secondary fixed operations.

These actions came as the result of petitions for rulemaking filed by the Special Industrial Radio Service Association (SIRSA) and, in a joint petition, the American Association of State Highway and Transportation Officials, the Associated Public-Safety Communications Officers, and the Forestry Conservation Communications Association.

Ohio Amateur Operator Fined For Operating Pirate Station

The FCC's network and the Allegan, Michigan Office shut down an unlicensed pirate broadcast station in Ohio. Mark W. Meece, N8ICW, of West Chester, Ohio, is a licensed radio operator who holds a Technician Class amateur radio license. Mr. Meece also has a commercial Restricted Radiotelephone Operator Permit. He was fined $1,000 for illegally operating on 7.404 MHz, a frequency allocated to the International Fixed Public Radio Service. The illegal station, called the "All American Fourth of July Radio," had a commentary and music format.

Unlicensed operation of a radio transmitter is a violation of Section 301 of the Communications Act of 1934, as amended. Sanctions may include administrative fines of up to $10,000 and/or criminal penalties of up to $100,000 and/or imprisonment for up to one year. Such misuse of radio frequencies is a serious offense because of the potential for interfering with safety-of-life services such as aviation, marine and law enforcement.

Section 90.261 governs the assignment and use of frequencies in the 450-470 MHz band for fixed operations. The frequencies are available to applicants for fixed use on a secondary basis to mobile operations. The rules, however, in many cases, make the same frequencies available for fixed use in one radio service that are assigned for mobile use in another service. In these cases, frequency coordination from more than one coordinator is required.

The Commission said the elimination of multiple coordination requirements for the Section 90.261 frequencies would make the coordination process faster and less expensive to the applicant. Because licensing information is available from various sources to all coordinators, the applicant's coordinator can select a frequency based upon available data without interservice coordination. This should simplify the coordination process and reduce the burden on applicants and coordinators.

FCC Amends Radio Control Service Rules

The Commission amended its rules regarding the technical standards for transmitters operating in the 72-76 MHz band in the radio control (R/C) radio service.

In 1982, the Commission made available on a secondary basis, 80 very high frequency (VHF) channels for radio remote control of model aircraft, cars and boats. However, because of the current technical standards for transmitters, simultaneous adjacent channel operation at the same location was often not possible. Consequently, all of the VHF channels were not always available to model enthusiast at a single location. In this proceeding, the Commission sought to rectify this problem by imposing new technical standards requiring a reduction in the level of permitted unwanted radiation, and by improving frequency stability for such VHF transmitters. The new rules will allow for a more efficient use of the 72-76 MHz channels used for remote control of models.

With respect to the implementation schedule, the Commission stated that it would give manufacturers a sufficient period of time before imposing the new technical standards. The Commission said that the effective date of March 1, 1992, for cessation of manufacturing and importing of VHF transmitters meeting the current technical standards, and March 1, 1993, for the prohibition on marketing of such transmitters was a reasonable transition period.

Concerning wideband users, the Commission believes that they should be given an opportunity to amortize their equipment investment. On the other hand, narrowband users must be able to use all additional channels without restriction. Consequently, the Commission will allow wideband transmitters purchased before March 1, 1993, to be used until March 1, 1998, at which time their use will be terminated. The Commission stated that the March 1, 1998, cutoff date represented a reasonable compromise between the competing needs of the wideband and narrowband transmitters.

FCC Proposed Various Amendments Governing The Maritime Radio Services

The Commission proposed various amendments to Part 80 of the rules governing the maritime radio services. Specifically, the Commission has proposed to clarify the maritime frequency tolerance rules; to change the certification requirements for field strength measurements on radiotelegraph ship installations; and to update and correct various Part 80 rules sections.

This action was initiated, partially, in response to requests by Mackay Communications and Exxon Communications Company. Mackay requested that the table specifying the frequency tolerances applicable to ship station transmitters be clarified and updated. Exxon asked that the rules governing field strength measurements for shipboard manual Morse code installations be simplified to allow the measurements to be conducted by employees of the licensee. The Commission also proposed to include a number of minor corrections and clarifications to the maritime services rules caused by other rules changes such as revisions in the fees program.

The Commission proposed to eliminate

one column in the frequency tolerance table that was no longer applicable after January 1, 1990, and to eliminate other references to dates since passed that are no longer relevant. In addition, the Commission proposed to fill in gaps in the table by inserting the appropriate frequency tolerance consistent with Appendix 7 of the International Radio Regulations (Geneva, 1979), and the rules applicable to transmitters type-accepted or approved after November 29, 1977. Existing ship station manual Morse Code telegraphy transmitters type approved before November 30, 1977, operating in the 100-525 kHz band which meet pre-January 1, 1990, frequency tolerance requirements would be grandfathered.

Finally, the Commission proposed to permit persons holding either a general radiotelephone license or at least a second class radiotelegraph license to conduct field strength measurements.

Small Passenger Vessels Exempted From Manual Morse Code Requirements Beyond Current 100 Nautical Mile Limit

The Commission amended its rules to permit small passenger vessels weighing under 100 gross tons to operate under a general exemption from the manual Morse code radiotelegraph station requirements beyond the current 100 nautical mile limit.

The Communications Act provides that all U.S. passenger vessels operated in the open seas, unless exempted by the Commission, must be equipped with a manual Morse code radiotelegraph station operated by two or more radio officers. The Commission may exempt from this requirement vessels of less than 100 gross tons when operated on domestic voyages. Currently, the rules provide a general exemption for such vessels when they are operated not more than 100 nautical miles from the nearest land and carry specified radiotelephone equipment.

The revised general exemption establishes a tiered scheme of radiocommunications equipment requirements, with additional equipment required at a greater distance from land. This tiered approach is consistent with the Commission's current rules, the current policy of granting individual exemptions, and the equipment requirements used in the forthcoming (1992) Global Maritime Distress and Safety System (GMDSS), part of an international agreement to which the United States is party. The theory underlying the revised general exemption, as well as the GMDSS, is that a vessel's sea area of operation is indicative of the necessary range of the equipment components carried.

In response to the comments, the Commission included additional equipment carriage requirements for vessels operated beyond 100 nautical miles from land, and removed the mileage nautical limit. The additional equipment affords an additional means to transmit a distress alert as well as means to receive maritime safety information.

FCC Initiates Inquiry Into Spectrum Efficiency In The Private Land Mobile Radio Bands Below 470 MHz (PR Docket 91-170)

In order to meet tomorrow's demand for more reliable and diverse communications services, the Commission initiated a Notice of Inquiry to explore options for promoting more effective and efficient use of the bands below 470 MHz by Private Land Mobile Radio (PLMR) licensees.

This is the culmination of a comprehensive review of the regulatory structure governing the PLMR services in these bands. The Notice thus serves as a vehicle for developing a full record in the myriad issues associated with how this structure can be modified to promote more efficient use of these bands to help satisfy the burgeoning demand for mobile communications.

The evidence suggests that the PLMR bands below 470 MHz are extremely congested in many areas of the country. As a result, communications on PLMR bands in these areas are unreliable and of low quality. The evidence reviewed also suggests that congestion will worsen significantly due to rapidly increasing demand for mobile communications. These bands, moreover, without significant regulatory change, will not support non-traditional mobile applications such as data, FAX, and video.

The Notice, therefore, seeks information to determine what rules and policies need to be modified to best spur widespread investment in spectrum efficient equipment in these bands to meet current and future user needs. Accordingly, the Notice focuses on two major areas. First, the Commission asked that commenters address changes in its technical standards to permit, facilitate and promote advanced communications techniques. The primary message of the technical section is that many advanced technologies, such as centralized trunking, spread spectrum and digital multiple access techniques have been, or soon will be, developed that can be applied to these bands. A change in the technological base can improve the capacity of these bands by a factor of five to ten times or more.

Second, comments are sought on regulatory policies that could be used to promote spectrum efficiency on the older PLMR bands. These policy questions largely revolve around the fact that channels on these bands are available on a shared basis only. This lack of exclusive channel assignments limits licensees's incentives and ability to become more spectrum efficient. Thus, comments are requested on possible means of introducing exclusive channel assignments in these bands.

Comments are also sought concerning other policies that might be used in conjunction with or instead of exclusive channel assignments. For example, the Commission discussed consolidating the 19 radio services, increasing the number of private carriers and charging fees to encourage use of more spectrum efficient equipment. The Commission also seeks comment on a concept called band licensing that could facilitate technologies such as spread spectrum by licensing users on entire sets of channels, rather than on individual channels. Comments on rule changes that would prohibit less efficient use of the spectrum are also requested. Finally, the Notice also seeks solutions, technological and otherwise, to the problem of unlicensed activity.

FCC Amends Aviation Rules Concerning The Frequency Tolerance

The Commission amended the aviation services rules by "grandfathering" until January 1, 1997, all VHF aircraft station radios with a frequency tolerance of 50 parts per million (ppm).

This action was initiated by general aviation entities who argued that broad ramifications of obsoleting VHF aircraft radios with a 50 ppm frequency tolerance were not considered in the Commission's 1984 decision to amend the frequency tolerance requirements for aircraft radio stations operating in the frequency bands from 100 MHz to 470 MHz. They estimated that approximately 93,000 radios are currently installed in the general aviation fleet that do not meet the new frequency tolerance requirement, and pointed out that these radios are installed in small, single-engine, piston-powered aircraft. Consequently, they claimed that the cost to the general aviation community of modifying or replacing these radios to comply with this rule would range between $60.5 million to $232.5 million.

The Commission believes that grandfathering until January 1, 1997, is a reasonable compromise that will reduce hardships for general aviation aircraft owners while encouraging the implementation of the Federal Aviation Administration's (FAA) 25 kHz channel plans throughout the nation. The Commission pointed out that because this action conforms to the Final Acts of the 1979 WARC, general aviation has had many years advance notice that 25 kHz channeling was coming and, as many commenters noted, aircraft owners are replacing these transmitters as they wear out or when they need to fly into FAA-controlled airspace. Without a cut-off date, the Commission expressed concern that there could be unacceptable delays in the full implementation of more efficient ground station assignments in this critical aeronautical band. ■

RTTY

BY ROBERT MARGOLIS

THE EXCITING WORLD OF RADIOTELETYPE MONITORING

Last summer, during a time of major solar storms that smothered most shortwave radio RTTY transmissions, I came across a new news service called Swiss Radio International RTTY Service.

It was sending news in German and French on 10515 kHz at 0242 UTC, at 50 bauds. Signing off at 0300, SRI said it transmitted daily in German, French and Italian, from 1830 to 1930 UTC on 17530 kHz; and 2000 to 2100, 0030 to 0130, and 0200 to 0300, all on 10515 kHz.

Has the quick brown fox suddenly become a chameleon? A Joseph with a coat of many colors? This twist of nature, depicting a maroon-furred fox, was found recently in a test tape sent by HDN, Quito Naval Radio, Ecuador. The tape, containing RY's, and SG's had the fox jumping over a lazy dog, just like it did in the English version. The sentence read, "El oit zorro marron salta sobre el perro perezzo." "Oit" is the only word I didn't know. It may've been a typo. The 75-baud transmission was at 1218 UTC on 18172.3

Despite the solar activity, which blacked out most RTTY signals heard at my listening post, I was able to find many stations that I had not previously logged, including a station in Jakarta, Indonesia, transmitting to one in Cambodia, and a sail training ship of the Spanish Navy fleet. Nearly all of this month's intercepts listings were newly added to my personal logbook.

European RTTY stations seemed to be more susceptible to the atmospheric disturbances than the Asian ones, my monitoring efforts revealed. Even the Asian facsimile broadcasts were of much better quality than the European ones.

The horrible listening conditions may have been the prime reason for a drop in contributions of loggings that were sent into this column last spring and summer. There are other reasons I'm aware of, such as more outdoor activities, but the major complaint was that nothing could be heard for long periods of time.

Sure, some setbacks seem to be suffered by RTTY monitoring hobbyists. But these setbacks only serve as a challenge to override those difficulties and to continue exploring for new RTTY stations. Had I thrown up my hands in despair during a temporary period of high solar activity, I would not have logged Swiss Radio International, and some of the other previously unlogged stations, and I would have gone unrewarded.

Although RTTY monitoring at times will become difficult, don't give up. Instead, consider it a challenge to be overcome. Satisfaction will come to those who work hard to attain it. and besides, you'll want to share your loggings to help make this the most useful source of information devoted to RTTY. From what I am told, *POP'COMM* has run more RTTY listings than any other communications hobbyist magazine in the world. Let's continue the tradition.

```
YTEST DE EBCB
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 1234567890
RYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRY
SGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSG
EBA EBA EBA EBA DE ECBC EBCB EBCB INT INT ZBZ ZBZ ZBZ
 K K K K K K
TEST DE EBCB
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 1234567890
RYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRY
SGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSG
EBA EBA EBA EBA DE ECBC EBCB EBCB INT INT ZBZ ZBZ ZBZ
 K K K K K K
TEST DE EBCB
THE QUICK BROWN FOX JUMPS OVER THE LAZY DOG 1234567890
RYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRYRY
SGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSGSG
EBA EBA EBA EBA DE ECBC EBCB EBCB INT INT ZBZ ZBZ ZBZ
 K K K K K K
```

EBCB is the callsign of the sail training ship Juan Sebastian de Elcano and is in the Spanish Naval fleet. It is seen here sending a test tape to EBA, Madrid Naval Radio, Spain. The 100-baud transmission occurred at 2012 UTC on 16598.7 kHz.

```
hk~o~~~~p~l~~~~~~f~m~d~~~ ~h~~~~~t~~w~j~n~~~pxu l~~~xne~l~jo5~tka~~ iuw~~a~d~~
d~n~~k~q~r~~~abllahs~t~~~d~l~~r
~~jr pzp
$~~~ts~~~~~b~~#'2~n~rrbcvud~~h~~~
ryryryryryryryryryryryryryryry
rx ryryryry
yryryjxryry~ryryryrhjytyp
ykyryryjyryryryryryry~felix diaz voy a bajarte whisky pagame en che( 1234567890 ((ggg)))xvyrygk
yryry~yrekv
fg
~zperu  nr// 808   grs// 175  (777)   ord   14/06%9 ggg/160kdxhcf~~liuqhvlph~o
uquyteiye ztter ptoqe pqwyu truqe wrypy
qieki wiypi uoyie iyuow ipoww iptur otrwq yuoyu ypqwt ityui
wiyup oiout otoyr qwrue ietie wp756 uoeto ogyuq euitp yrqou
oopqw trpyq rerei etytq yqpwp riooliype iyqol u
```

Encryption, RY's and five-figure groups, courtesy of the Cuban Embassy, Lima, Peru. Logged on 16318.7 kHz at 2123 UTC, 50 baud.

```
zczc
bande d essai tty
ryryryryryryryryryryryryryryryryryryryryryryryryryryry
ry ry ry ry ry ry ry ry ry ry
voyez le brick geant que j examine pres du wharf
le bruit des tty empeche les marsouins de faire la sieste
fin du message d essai
renvoyez la bande telle que recue
```

Although no ID accompanied this test tape, the sender was found to be FUF, French Navy, Fort de France, Martinique. The fourth line, beginning, "Le bruit. . .," translates to, "The TTY noise prevents the Marines from taking a siesta." The last line says, "Send back a tape similar to that received." The test was logged on 14486.2 kHz at 1058, and the following day on 14802.2 at 1220. Both were ARQ-E/72.

```
ZCZC
hshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshs
hshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshshs
CXW 16,55 27.06.1991
nnnn
```

H=R, S=Y, C=M, X=S, and W=K. so this Cyrillic test tape in the Latin alphabet becomes RYRYRY. . . from MSK (Moscow). The station is RWN71, Moscow, USSR. Monitored at 1355 on 18455 kHz, 50 baud. The time given is local time, Moscow.

```
S5F S5F S5F DE P6Z P6Z P6Z RE BJR XAV SRI A 1810Z NIL SUR LA 7 AUG
DE TROIS
JE QAP LA 7 AUG DE 3  ET LA 270 AUG DE UN
LA 7 AUG DE 3 ET LA ___ET_AUG DE UN
LA 7 AUG DE 3 ET LA 270 AU_ ___
QTC TROIS INT QRU K TKS SSSS.
S5F S5F S5F DE P6Z P6Z P6Z RE BJR XAV SRI A 1810Z NIL SUR _A __ AU_
_DE TR___
_
JE QAP LA 7 AUG DE_3  ET _A 270 _-__ __)-__7 AUG DE 3 ET LA 270 AUG DE UN
LA 7 AUG DE 3 ET LA 270 AUG DE UN
QTC TROIS INT QRU K TKS SSSS.
M
S5F S5F S5F DE P6Z P6Z P6Z RE BJR XAV SRI A 1810Z NIL SUR LA 7 AUG
DE TROIS
_
J_ _A MA_G D_ RE_
_A _A__ DE UN
LA 7 AUG DE 3 ET LA 270 AUG DE UN
LA 7 AUG DE 3 ET LA 270 AUG DE UN
QTC TROIS INT QRU K TKS SSSS.
S5F S5F S5F DE P6Z P6Z P6Z RE BJR XAV SRI A 1810Z NIL SUR LA 79_55__.OKOKO A
SA_A OKOKOKO TESTESTET  TINU JE CH_N__GN_D RENV_OI  O_____ M _T_SE_TSTETS
TINU TINU JE CANGE DE RENVOIOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOK__
KOKOKOKOKOKOKOKOKOKOKOKOKOKOKO__O_IO_KO_KOK__KMOKO___R_____O____DRKOOM_O_OKOKO
KOKO
_OKOKOKOKOKO_KOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOKOMOKOKO
KOKOKOOKOKOKOOKM_MH_MH_M__H_T__OHNMM_____ __ ___M_OKOKOKO_KOKOKOKOK  VX  BR _B
JR  J ._,._  _O_5543 )- 2-__5__ _K
_
AR_ RIEN SUR LA 7 HIHIHI OK_O_M_I___E_ _EU
OKOKO  CA DOIT EYTRE LE GW 0052 171101093__.____9__
/___=_88__888
__
__________ ___5__,___20__9___9__9___'___)T_G___MOKOKOKOKOKOKOKOKOKOKOKOKOKOK
OKOKO
KOKOKOKOKO C PARTI JOLI THX
NR 587/BR

PP S5F
DE RFGW 1342 1711438
ZNR UUUUU
P 192245Z JUN 91
BT
BBBB
```

"P6Z," MFA, Paris, France, sends unclassified messages to "S5F," the Frenchy Embassy at Brasilia, Brazil. Found on 20975.2 kHz at 1809 UTC, FEC-A/192.

POP'COMM reader Andy Gordon of Connecticut, well-known among utility station monitors as one who likes to listen in on the voice communications of the U.S. Navy in port and on the wave, caught a booboo in my July intercepts section. I had said at 14936.7 that NNN0NUW was the MARS callsign of the USS Whidbey Island (LSD 41), a dock landing ship. He says the callsign is that of the Whidbey Island Naval Air Station, and the MARS callsign for the ship is NNN0CYZ.

Thanks, Andy, for your letter. Too bad you don't have any RTTY gear, but what the heck, the Navy encrypts most of its stuff anyway. They rarely even send test tapes in the clear. They're no fun.

Before any one writes to me asking about this column's illustrated examples of TTY messages being in lower case letters, I recently bought a decoder that allows me to get printouts in either upper or lower case. I prefer lower case because it's easier to read, even though the first word of every sentence isn't capitalized.

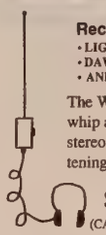
Abbreviations Used In The RTTY Column

AA	**Arabic**
ARQ	**SITOR mode**
BC	**Broadcast**
EE	**English**
FEC	**Forward Error Connection mode**
FF	**French**
foxes	**"Quick brown fox . . . "test tape**
GG	**German**
ID	**Identification/ied**
MFA	**Ministry of Foreign Affairs**
nx	**News**
PP	**Portuguese**
RYRY	**"RYRY . . . "test tape**
SS	**Spanish**
tfc	**Traffic**
w/	**With**
wx	**Weather**

RTTY Intercepts
(All intercepts made by the column editor during a time of major solar storm storms.)

5094.3: KAWN, Offutt, AFB, Elk Horn, NE, w plaintext wx forecast for Washington State, 74.2 baud at 0427. Sent on the WAZ circuit.

WR-3 *WHISTLER* RECEIVER



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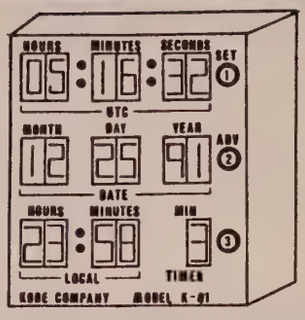

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CIRCLE 6 ON READER SERVICE CARD


```
frankreich verkqerzt wehrpflicht-daqer: die
franzoesische regierung hat am mittwoch die
verkuerzung der wehrpflicht ab 1. oktober 1991 von
zwoelf auf zehn monate beschlossen. parallel dazu
wirxiber zivildienst fqer verweigerer aus
gewissensgruenden von 24)auf 20 monate verringert.
swissair deoenagz: la direction de swissair a decide
de transfn~ son service de comptabilite de zurich
a bombay en inde dans le cadre de son programme de
reutruvourationp'move'.)- .3'743, qui devrait faire
economiser 00millions de francs par wnnee apla
compagnie, engendrera la perte be quelque 150 postes
de travail a zurich d'ici l'autmmme 1994.
vente d'armes: la suisse a salue la decision d
b~cinq membres permane ts fu conseil de securite des
nationu qcies de parvenir a un meiwleur controle de
la vente b%-4.3', en particuluer au proche- orient=
2les decisions prises a paris n'wurónt toutefois que
peu de repdrcussions pour la suissen les
exportatiovs d'armes dans cette region etant peu
importantes.
6,7
~milliards pour la recherche ztple
developpement: enhyquqse, les depenses de recherche
nnnn
swiss raxio international rtty serviceoradpo suiyee internationalz service
rtty
schwzizer radio international rtty dienst
radio svizzera imternazionale sermizio rtty
ch-3000 bejn 15
we transmit daily in german,frenv wnd italien
from 18.30 to omep utc
on 17530 khz to africa
from 20.00 to 21.00 utc
on 10515 khz to asia
from 00.30 to 01.30 utc
on 10515 khz to uoqth ameica
from 02.00 to 03.00 utc
on 10515 khz topvovth america
end of transmission
11.07.91
```

News in German and French, and a broadcast schedule, ends this 50-baud transmission from Swiss Radio International's RTTY serviced on 10515 kHz.

6837: Un-ID buried in thick QRN, ARQ at 0326. I've logged Shell Oil, Lagos, Nigeria, in ARQ on this freq in the past.

6902.2: KAWN, Offutt AFB, w wx data, 75 baud at 0235.

7460.5: 5YE32, Nairobi Meteo, Kenya, w coded wx, 50 baud at 0045.

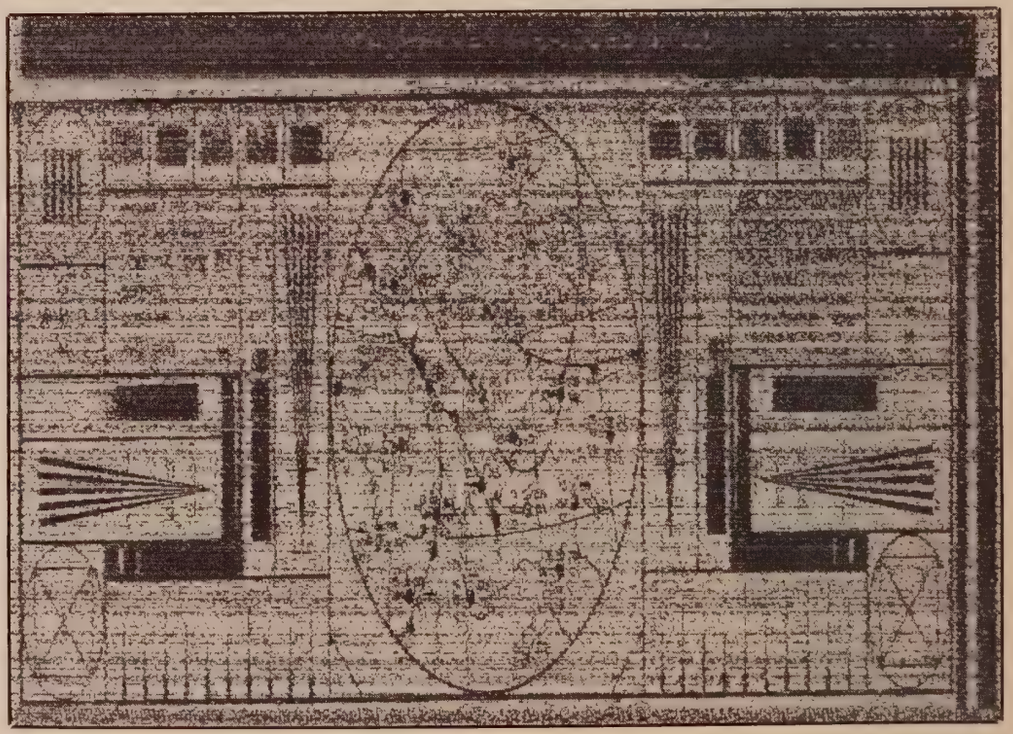
7716: Un-ID idling 0316 to past 0400, ARQ-E/72.

7832.2: AFB1WE chewing the fat w AFA1FP, 45.45 baud at 2344.

7962.7: "AAA" w CQ, packet radio at 0308.

7992.5: USMC MARS sta NNN0ZLS in comms w HRC, MCL, TLM & FRG, packet radio at 0315.

8820.7: Un-ID using an unknown TTY mode at 0150. Was a synchronous xmsn at 96 bauds, and had a 56 bit-block cycle.



Test chart from DDK6, Hamburg Meteo, Germany, sent during a period of moderate solar activity. Copied off of 13882.5 kHz at 1430 UTC, 120/576.

Weather chart from RCR79, Khabarovsk Meteo, USSR, captured on 14610 kHz at 1220 UTC, 120/576.

10515: Swiss Radio International w nx in GG & FF at 0242, 50 baud.

10575.5: KAWN, Offutt AFB, Elk Horn, NE, w aero wx, 85 baud at 1504.

10600.2: XVN37, VNA, Hanoi, Vietnam, w nx in FF & EE, 50 baud at 1207.

10606.7: 6WW, French Navy, Dakar, Senegal, heard at 0350, ARQ-E3/192. Used c/s of RFTJ & circuit ID of TJA.

10620: Un-ID w "03201 wcdc x + ?" in ARQ at 0102 & 0112, then off the air. It was the receiving sta the rest of the time it was on the air.

10900.5: Un-ID FCC sta w bit-inverted tfc at 1231, 45.45 baud.

10950.2: RFQP, French Navy, Djibouti, xmtng at 2054, ARQ-M2/200, on both channels.

11012.5: SUU, Cairo Meteo, Egypt, w coded wx, 50 baud at 0047.

11196.5: CCS, Santiago Navrad, Chile, w/5L msgs, ARq-M2/96, channel A, at 0205. Used c/s of CBDFA, and a circuit ID of SND.

11236.7: Un-ID w s/off in GG, and a TVVB selcal, ARQ at 1220.

11621.5: Un-ID w encryption, ARQ-M2/96, channel A, at 1930.

12206: Un-ID w encryption, 200 baud at 1320.

12222.5: CLP65, Cuban Emb., Managua, Nicaragua, w crypto after ZZZZZ & msgs in SS, 50 baud at 0055. S/off 0100 w 73's & 88's.

12229: Un-ID w 81-baud encryption at 1250 & 0108.

12579.3: NIK, USCG, Boston, MA, w/an International Ice Patrol bulletin, FEC at 1219.

12992: WLO, Mobile R., AL, w/a tfc list & offshore marine forecast, FEC at 1738.

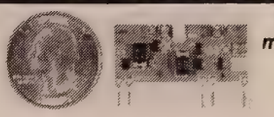
13415.2: Un-ID w TVKP selcal in ARQ at 1358. At 1445, I found this sta on 13545.2, w/5L grps & the same selcal.

13417: CCS, Santiago Navrad, Chile, w/msgs to CXR at 1213, 75 baud.

13518.5: Un-ID w encryption, 84.21 bauds at 1456.

13524: CCS, Santiago Navrad, Chile, w aero wx,

PICKS UP A WHISPER 50 FEET AWAY!



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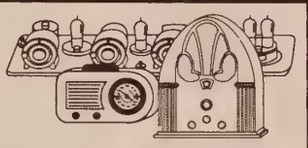

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CIRCLE 126 ON READER SERVICE CARD

plaintext wx in EE, a 5L msg, & NTM's in SS, 100 baud at 2310.

13527.2: Un-ID in ARQ at 1313 as receiving sta only.

13528.7: Un-ID in Jakarta, Indonesia (ID'd as JKT), w telexes in EE to Kampuchea (KPC), a.k.a. Cambodia. Telexes re a passenger list & arrival time. Was in ARQ at 1313.

13555: Un-ID w encryption, 81 baud at 1513.

13593.3: Un-ID w badly garbled tfc in EE, ARQ at 0326. Sent TVQV selcal at 0330.

13737: 5YD7, Nairobi Meteo, Kenya, w/RYRY, 75 baud at 2232.

13830.2: RFQP, French Navy, Djibouti, w "controle de voie," ARQ-M2/200 at 2242 on channel A, and at 2313 on channel B.

14415: Un-ID w 200-baud encryption at 1140 & 1242. Sig was asynchronous.

14484: Un-ID using an unknown 200-baud synchronous TTY mode with a 56 bit-block cycle at 2009.

14486: FUF, French Navy, Fort de France, Martinique, w/a test tape, ARQ-E/72 at 1058.

14492.2: CCS, Santiago Navrad, Chile, w msgs to HDN, 75 baud at 0146.

14592.7: Un-ID w/an FDM xmsn in an unknown mode, 128.5 baud at 0400.

14626.7: FUF, FRENCH Navy, Fort de France, Martinique, w "controle de voie," ARQ-E3/100 at 0022. Used RFLI c/s & was on LIJ circuit.

14682: Un-ID idling for a long time, ARQ-E3/100 at 2125.

14754: Un-ID w a msg in FF, ARQ-E/72 at 1957. Near fadeout by 2040.

14802: FUF, French Military, Fort de France, Martinique, w ID at 0000, ARQ-E/72. Used c/s of RFLIA & was on IAG circuit.

14825.4: CLP1, MFA, Havana, Cuba, w prensa minrex, 50 baud at 2039.

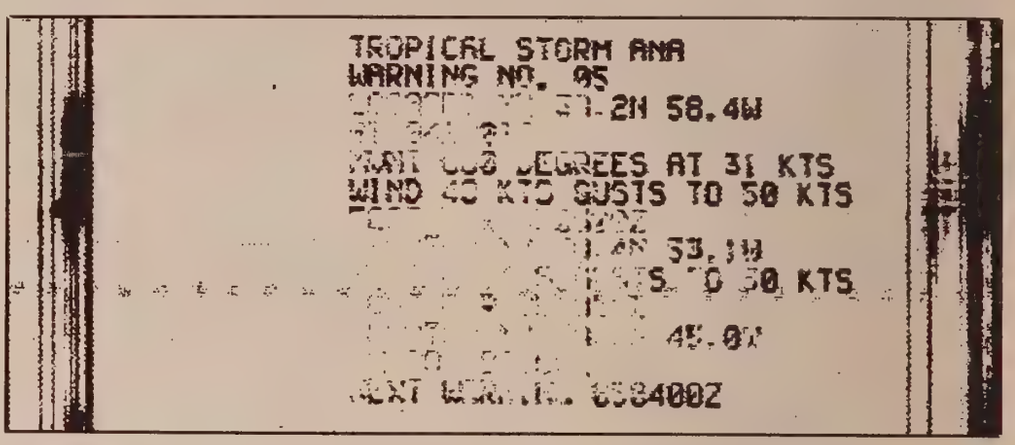
14829.7: CLP1 w EFE & UPI nx in SS, 50 baud at 2337.

14875: RFLI, French Navy, Fort de France, Martinique, xmtng at 2040, ARQ-E3/100.

14926.7: 6WW, French Navy, Dakar, Senegal, w navareas & hydrolants, ARQ-E3/48 at 0540.

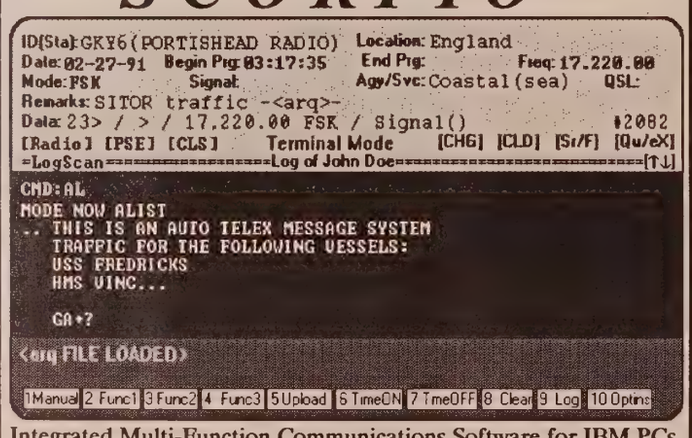
14935.3: NNN0EYD w MARSgrams to NNN0COH,

"Chart not available" from KVM70, Honolulu Meteo, Hawaii. Transmitted on 16135 kHz at 2238 UTC, 120/576.



Tropical storm warning released by NAM, U.S. Navy, Norfolk, VA, on 10865 kHz at 2150 UTC, 120/576.

SCORPIO


ID(Sta):GKY6(PORTISHEAD RADIO) Location: England
Date: 02-27-91 Begin Prg: 03:17:35 End Prg: Freq: 17.220.00
Mode: FSK Signal: Agy/Svc: Coastal(sea) QSL:
Remarks: SITOR traffic -<arq>-
Data: 23> / > / 17.220.00 FSK / Signal() #2082
[Radio] [PSE] [CLS] Terminal Mode [CHG] [CLD] [Sr/F] [Qu/eX]
=LogScan=Log of John Doe=[↑↓]
CMD:AL
MODE NOW ALIST
-- THIS IS AN AUTO TELEX MESSAGE SYSTEM
TRAFFIC FOR THE FOLLOWING VESSELS:
USS FREDRICKS
HMS VINC...
GA+?
<arq FILE LOADED>
1 Manual 2 Func1 3 Func2 4 Func3 5 Upload 6 TimeON 7 TimeOFF 8 Clear 9 Log 10 Optns

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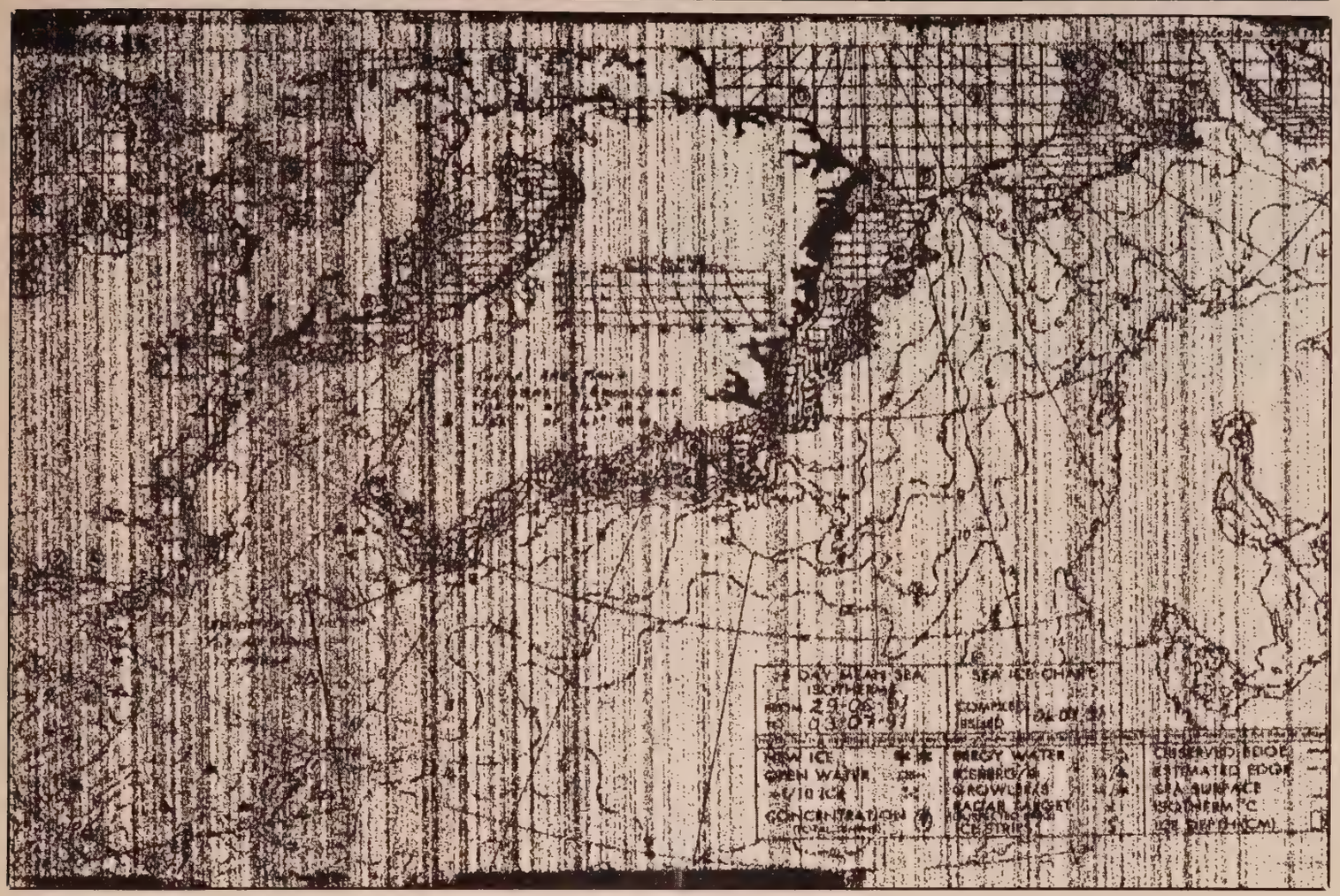


Solar activity was moderate when this sea ice map was sent by GFE24. Bracknell Meteo, England. Atmospheric noise caused some of the map to become darkened and somewhat difficult to read. Was on 18261 kHz at 1602 UTC, 120/576.

ARQ at 1332.

15918.5: GYA, Royal Navy, London, England, w/a test tape at 1302, 75 baud.

16004: Un-ID w encryption, 81 buad at 1322.

16006.7: Un-ID Egyptian diplo w a brief msg in AA before leaving the air. Was ARQ at 0226.

16019.7: Egyptian Emb., Washington, DC, w nx in EE & AA, ARQ at 0025.

16022.5: DGQ21H5, DMK, MFA, Bonn, Germany, w nx in EE at 1610, and in GG at 1621, FEC-A/96 at 1610.

16111: HBD66, Swiss Emb., Ottawa, ON, acting as receiving sta only, ARQ at 1430. Gave ID as it went off the air.

16111.1: Swiss Emb., San Jose, Costa Rica, w/5L msgs to Berne, ARQ at 1138. Within the past year, I have found more and more diplo stas using Costa Rica as a xmsn site. Is it possible that the country's taking the spy activity that Cyprus is already known for?

16111.2: KNY27, Swiss Emb., Washington, DC, w a 5L msg, ARQ at 1542. S/off at 1603, foll by HBD66, Ottawa, ON, s/on at 1606 before sending 5L tfc.

16170: Un-ID using an unknown 192-baud synchronous TTY mode at 1103 & 1505. Was duplex, and had a 56 bit-block cycle.

16175.2: NNN0JTS, USN MARS, Norfolk, VA, w MARSgrams, ARQ at 0017.

16246.5: VOA, Tangier, Morocco, w RYRY to Greenville, NC, FDM 75 baud at 1456.

16274.3: CLP1, MFA, Havana, Cuba, w 5F msgs to Nigeria, 50 baud at 2302.

16302: DFZG, MFA, Belgrade, Yugoslavia, w encryption, FEC-A/144 at 1241.

16306: Un-ID Yugoslav diplo w tfc in SC, 75 baud at 1900.

16318.5: Cuban Emb., Lima, Peru, w 5F msgs & Peruvian nx, 50 baud at 2116.

16327: Un-ID w/a 5L msg, 75 baud at 1635. S/off 1636 w "pse qrq qsl qru sk."

16451: Un-ID w encryption, ARQ-E-192 at 1422.

16457: Un-ID w encryption, ARQ-E/192 at 1356.

16598.7: EBCB, the Spanish Navy's four-masted top sail training schooner Juan Sebastian de Elcano, w RYRY & SGSG to EBA, 100 baud at 2012. The ship was commissioned in 1926 & launched in 1927. It is named in honor of the first circumnavigator of the world (1519-26), who took command of the expedition led by Ferdinand Magellan after Magellan's death.

16997.6: WLO, Mobile R., AL, w/a tfc list & wx forecasst, FEC at 1635.

17454.7: Un-ID French diplo sta w 5L msgs, ARQ6-90/200 at 1223. Many deep fadeouts after a major solar storm.

17510.7: Un-ID sta whose ARQ sig was completely buried buy atmospheric noise at 1726.

18032: DFZG, MFA, Belgrade, Yugoslavia, w crypto after VCVCVC, & telexes in SC & EE, 75 baud at 1644.

18033.5: Un-ID French diplo sta w msgs w 5L grps, or in FF, ARQ6-90/200 at 1723.

18172.3: HDN, Quito Navrad, Ecuador, w/RYRY, SGSG, & "el oit zorro marron salta sobre el perro perezozo" (foxes test sentence in SS.). Was 75 baud at 1218.

18219: Un-ID in Brasilia, Brazil, w "alo Manaus (Brazil)" + a msg in PP & RYRY to Manaus, which was on 18176. Was Autospec/68.5, spread 51, at 1109. Manaus replied back at 1125, "Alo B__S aqui MNS" on the other freq. The "B__S" was a garble caused by an atmospheric disturbance. It made me think it to be "BRS," for Brasilia.

18263.2: HBD20, MFA, Berne, Switzerland, w a 5L msg at 1130, ARQ. KNY27, Swiss Emb., Washington, DC, w tfc in ARQ at 1447.

18275: Un-ID w encryption, ARQ-E/192 at 1223.

18308.5: Un-ID at 192 bauds, mode unknown, at 1622. Faded out by 1626.

18397: Un-ID w encryption, 81 baud at 1227.

18526.2: Un-ID w/a 5L msg, ARQ at 1509. Very weak sig.

18549.7: Un-ID w 360-baud encryption at 1531. Speed was verified by using two different decoders.

18602.7: VOA, Greenville, NC, w RY's & s/off msg to Tangier, Morocco, FDM 70 baud at 1457.

18610.5: SAM93, Swedish Emb., Havana, Cuba, w tfc to Stockholm, SWED-ARQ at 1511.

18686: Un-ID w encryption, 81 bauds at 1306.

18768: Un-ID w encryption, 81 bauds at 1306.

18768: Un-ID using an unknown TTY mode at 192 bauds, at 1527.

18810: SAM93, Swedish Emb., Havana, w personal letters at for several hours, SWED-ARQ.

18996.7: RFHJ, French Navy, Papeete, Tahiti, w "controle de voie," ARQ-E3/96 at 1551.

20402.3: YWM1, Maracaibo Navrad, Venezuela, w unclas tfc to CCS, 75 baud at 1742.

20421.2: Un-ID idling for a lengthy period, ARQ-M2-242/96 at 1809.

20634: RFVI, French Mil., Le Port, Reunion, w "controle de voie," ARQ-E3/100 at 1912.

20856.7: CLP5, Cuban Emb., Algiers, Algeria, w tfc at 1515, 75 baud.

20872.2: USAF MARS stas AFA2XO & AGA6TR in 2-way comms, and AGA5MC clg AGA8HI. Was 73.2860 bauds at 1824. Two different decoders gave the precise reading of the baud rate.

20986.8: Un-ID w tfc in Swedish, SWED-ARQ at 1554.

20987.8: Un-ID w s/off "tks bibi," SWED-ARQ at 1338.

23152: Un-ID idling, ARQ-E/96, 1502-1550. ■

BY DON SCHIMMEL

COMMUNICATIONS CONFIDENTIAL

YOUR GUIDE TO SHORTWAVE "UTILITY" STATIONS

From Switzerland we heard from Henri Walser who told of a SID (Sudden Ionosphere Disturbance) between roughly 1500 and 1600 UTC on the 1st of June.

"Practically the whole Short Wave spectrum between 3-30 MHz was absolutely dead. The only station I could hear at all was a "Swiss Radio International" broadcast in English on 21 MHz. This was very unusual as well, as we are normally in the dead zone for this kind of broadcast.

However, there was no trace of any utility station of any kind to be heard on the whole spectrum. After about 1600 UTC, reception improved slowly starting at the higher frequencies.

I experienced a similar phenomenon once while serving as a Ships Radio Officer. We were in the South Atlantic roughly midway between the Magellan Strait and Cape Town when both receivers went completely dead for about five hours. I first thought of receiver malfunction, of course, but tests showed that everything was OK. It was rather spooky as it seemed that the outside world had ceased to exist. This was during the height of the cold war. The Captain gave me some telegrams to transmit, but I decided to tell him nothing and wait for further developments.

In the meantime, I have heard sporadic news that extremely violent solar flares did occur, but I really would be interested if this 1st of June SID was observed by anybody else and in other parts of the world as well."

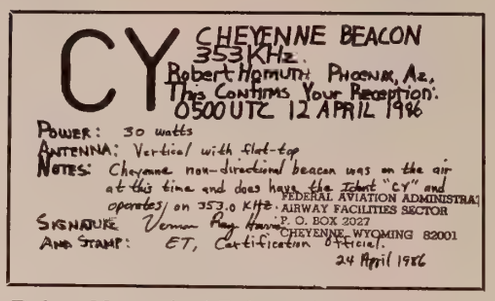
Ary Boender, the Netherlands, has expanded his list of Utility Stations in the 0-900 kHz spectrum. The list now contains well over 1100 entries and includes FAX stations. With the increased page count and new postal costs, the list is now pegged at $5.00 for worldwide surface mail/airmail within Europe or $8.00 for airmail outside Europe. Order from Ary Boender, Lobeliastraat 33B, 3202 HR Spykenisse, The Netherlands.

Ary mentioned he was pleased to find out about the Goddard Space Center relay service on 21395 kHz and wished he had known of it sooner. He also included in his letter the id's for two items in the June loggings. 273 kHz, DHA is a Beacon at the Dahran Intl Airport, Saudi Arabia. 404 kHz, LEN is a Beacon at Bandar Lengeh, Iran. Thanks, Ary for the idents.

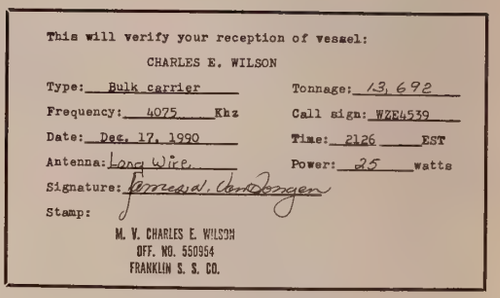
Continuing with our overseas contributors, a note was received from Simon Mason, England which indicated he was checking on some frequencies I had provided to him and he reported he could hear the YL/SS short message station on 6840 kHz. Thanks for the info, Simon.

Dave Sabo, CA dropped us a few lines and sent along a few QSL addresses. (Singapore Aeradio) Telecommunications Authority of Singapore, Yio Chu Kang Radio Receiving Station, 380, Yio Chu Kang Road, Singapore 2880; Commanding Officer, USCGC STEADFAST (WMEC 623), c/o CG Station, 600-8th Avenue, SE, St. Petersburg, FL 33701; (Thule GCCS) ITT/FELEC Services, Inc., BMEWS Site 1, BMEWS Box 5, APO New York 09023. Our thanks to Dave for these addresses.

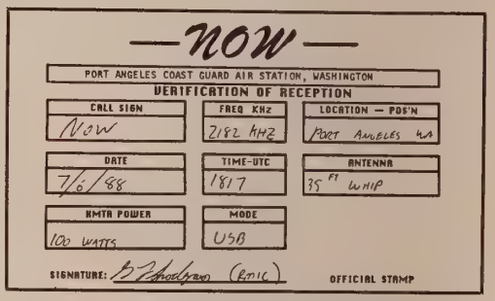
A note from Len Helsing, TN said, "As a totally-disabled veteran I enjoy SWL'ing. One evening I was tuning my R-2000 and at 0607 UTC on 14260 kHz I heard a series of Spanish numbers grouped together. Each group was a series of five numbers that was repeated, followed by a pause. Then another group of five, and again repeated, and followed by a pause. I listened for 3 to 4 minutes and the groups continued." Len it would appear that you heard your first "Spy Numbers" station.


CY CHEYENNE BEACON
353 KHz.
Robert Homuth, Phoenix, Az.
This Confirms Your Reception.
0500 UTC 12 APRIL 1986
POWER: 30 watts
ANTENNA: Vertical with flat-top
NOTES: Cheyenne non-directional beacon was on the air at this time and does have the ident "CY" and operates on 353.0 KHz.
SIGNATURE AND STAMP: Vernon Reg Hamm ET, Certification Official.
FEDERAL AVIATION ADMINISTRATION
AIRWAY FACILITIES SECTOR
P. O. BOX 2027
CHEYENNE, WYOMING 82001
24 April 1986

Robert Homuth, AZ shares his PFC with us.


This will verify your reception of vessel:
CHARLES E. WILSON
Type: Bulk carrier
Tonnage: 13,692
Frequency: 4075 Khz
Call sign: WZE4539
Date: Dec. 17, 1990
Time: 2126 EST
Antenna: Long Wire
Power: 25 watts
Signature: Lorrest A. Van Dongen
Stamp:
M. V. CHARLES E. WILSON
OFF. NO. 550954
FRANKLIN S. S. CO.

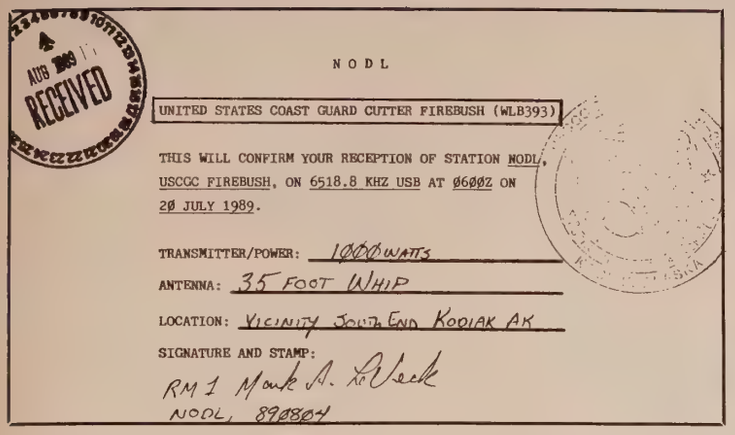
PFC from Russ Hill, MI.


—NOW—
PORT ANGELES COAST GUARD AIR STATION, WASHINGTON
VERIFICATION OF RECEPTION
CALL SIGN: NOW
FREQ KHz: 2182 KHZ
LOCATION — POS'N: PORT ANGELES WA
DATE: 7/6/88
TIME-UTC: 1817
ANTENNA: 35 FT WHIP
RMTR POWER: 100 WATTS
MODE: USB
SIGNATURE: B Shadbran (RMIC)
OFFICIAL STAMP

Here is a PFC used by Steve McDonald, BC, Canada.

Eugene Woody, NY came in with a query and a few comments. "Have you, or other listeners, noted a USB carrier modulated by a 60 Hz buzz recently on some of the US Navy frequencies? The noise seems to be unintentional, judging by the comments made about it by some Navy units. The interference, or whatever it is, sometimes

Desert Storm QSL received by Andy Gordon, CT.



N O D L

UNITED STATES COAST GUARD CUTTER FIREBUSH (WLB393)

THIS WILL CONFIRM YOUR RECEPTION OF STATION NODL, USCGC FIREBUSH, ON 6518.8 KHZ USB AT Ø6ØØZ ON 2Ø JULY 1989.

TRANSMITTER/POWER: 1000 WATTS

ANTENNA: 35 FOOT WHIP

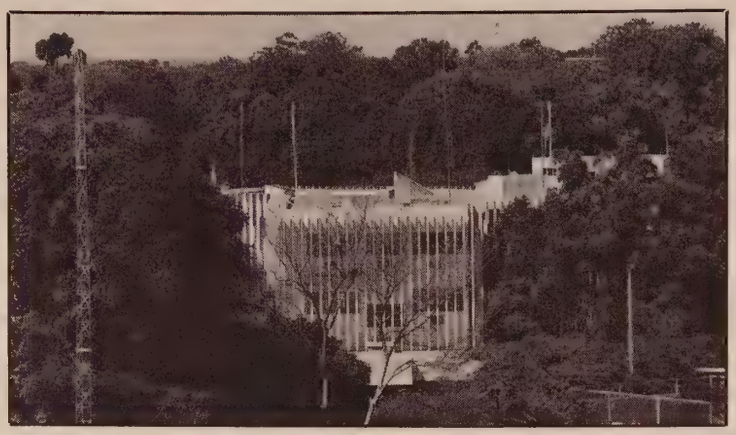
LOCATION: VICINITY SOUTH END KODIAK AK

SIGNATURE AND STAMP:

RM 1 Mark A. LaVeck

NODL, 890804

PFC made up by Dave Sabo, CA for verification of a USCG reception.



Antennas on roof of Soviet Embassy in Lusaka, Zambia. Photo courtesy of Prof. Desmond Ball, Australia.

sounds like a hot mike with a lot of background ambience (no voices audible-just aloud rushing sound) that has been left on transmit for several hours at a time. I have heard this phenomenon on 11267, 8972, 7535, 6697, 4373 and most recently on 3130 kHz. I wonder whether this could be a kind of electronic "smoke-screen" intended to cover-over communications on the channel by increasing the noise-to-signal ratio thus making weaker signals harder to copy, or whether it is entirely inadvertent.

The rushing sound, similar to squelch noise, may be some kind of new very-high-speed data transmission. Very-high-speed (9600+ baud) data often sounds like noise. I can only speculate as to whether the signal is a data transmission as I have neither heard any preamble before the transmissions begin, nor heard any tail after they end which could indicate some kine of "sync-ing."

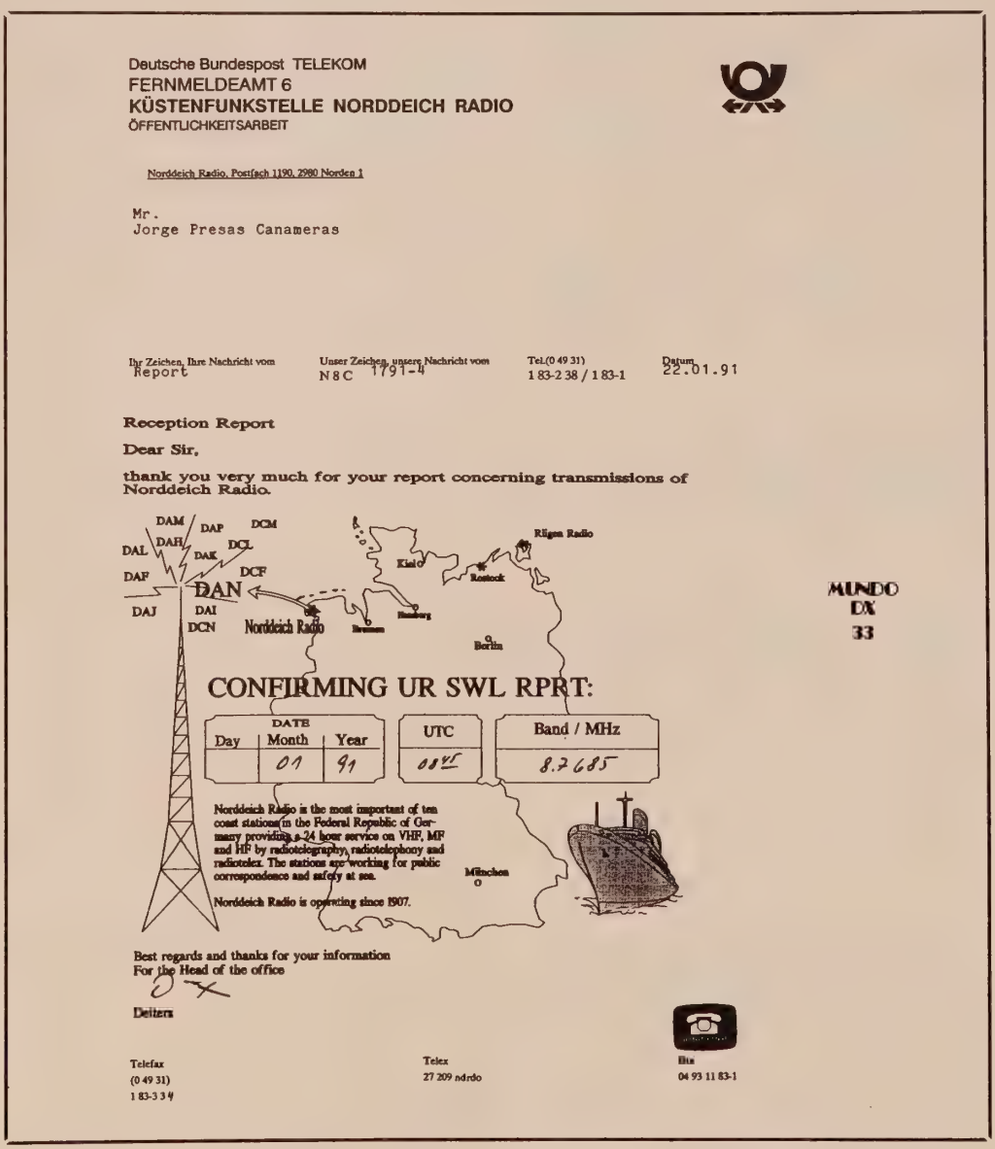
Another interesting phenomenon is the "chirp-chirp-chirp-chirp-rasp" transmission. These are definitely a data transmission of some sort. While listening to a US Navy radar training net on 3037 kHz USB recently, a radio op at station Hotel accidently switched inot the chirp-rasp mode as he attempted to set up his "Black Box" (radar unit). He came on the air and apologized for going into the "CRATT" (pronounced "see-rat"). He said he had wanted to come up on Uniform Hot Fox (UHF) in that mode, but he "got crossed up."

In his final comment, Eugene wondered if the apparent decrease in traffic on USCG channels 8984 and 5696 kHz indicate that more and more transmissions are being conducted via satellite. He said he had heard several exchanges on 5696 kHz where Commsta Portsmouth has instructed a caller to "go SatCom."

Another overseas reader, Chuck Roswell, who is the Frequency Coordinator at Trans World Radio, Bonaire, Netherlands Antilles offered a possible explanation for the strange transmission which Jeff Burns reported in the March column. Jeff had monitored a German VOX on 20 meters and Chuck suspected the transmission was conducted by "someone who does not like contests was playing a German language course tape to cause interference to the contest proceedings."

By the way, Chuck hosts a program for SWL's and DX'ers on Saturdays at 1130 UTC on 11815 and 15345 kHz. The broadcast is also transmitted on Sundays at 0330 UTC on 9535 and 11930 kHz.

Bjorn Vaage, CA picked up a test notification on 100 kHz which ran from 1900-2200 UTC. The test has apparently been running for some months and concerns the Loran Station at Williams Lake. Here is the transmission: "STARTING 20 DEC 90 LORSTA WILLIAMS LAKE WILL COMMENCE ON AIR TRANSMISSIONS



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Norddeich Radio, Postfach 1190, 2980 Norden 1

Mr.
Jorge Presas Canameras

Ihr Zeichen, Ihre Nachricht vom	Unser Zeichen, unsere Nachricht vom	Tel.(0 49 31)	Datum
Report	N8C 1791-4	1 83-2 38 / 1 83-1	22.01.91

Reception Report

Dear Sir,

thank you very much for your report concerning transmissions of Norddeich Radio.

DAM DAP DCM DAH DAL DAK DCL DAF DCF DAN DAJ DAI DCN Norddeich Radio Kiel Rostock Rügen Radio Bremen Hamburg Berlin

MUNDO DX 33

CONFIRMING UR SWL RPRT:

DATE Day	Month	Year	UTC	Band / MHz
	01	91	0845	8.7685

Norddeich Radio is the most important of ten coast stations in the Federal Republic of Germany providing a 24 hour service on VHF, MF and HF by radiotelegraphy, radiotelephony and radiotelex. The stations are working for public correspondence and safety at sea.

Norddeich Radio is operating since 1907.

München

Best regards and thanks for your information
For the Head of the office

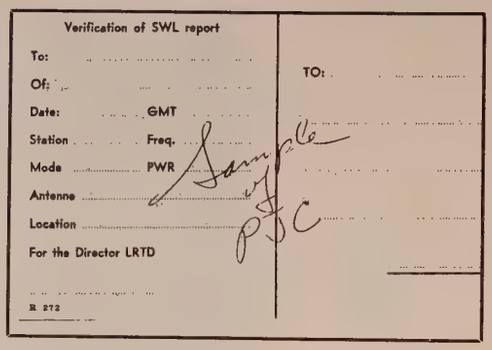
Deiters

Telefax (0 49 31) 1 83-3 3 9

Telex 27 209 ndrdo

Tlfn 04 93 11 83-1

R.C. Watts, KY noted this QSL in a Spanish language magazine which indicates Norddeich Radio is again sending out reception verification.



Chuck Roswell, Bonaire, Neth. Antilles sent in this QSL card used by PJC, Coast Station in Curacao, Neth. Antilles. Their box number is PO Box 103. Note that Aruba is still listed on this QSL card. Aruba became "Status Apart" (separate country) in 1986. They will probably use these cards until they have to be reprinted! The crest of the Neth. Antilles now has five stars in it. They are happy to QSL. SASE or SAE + IRCS are appreciated.

Abbreviations Used For Intercepts

AM	**Amplitude Modulation mode**
BC	**Broadcast**
CW	**Morse Code mode**
EE	**English**
GG	**German**
ID	**Identifier/led/ication**
LSB	**Lower Sideband mode**
OM	**Male operator**
PP	**Portuguese**
SS	**Spanish**
tfc	**Traffic**
USB	**Upper Sideband mode**
w/	**with**
wx	**Weather report/forecast**
YL	**Female operator**
4F	**4-figure coded groups (i.e. 5739)**
5F	**5-figure coded groups**
5L	**5-letter coded groups (i.e. IGRXJ)**

OF NOCUS SIGNALS (8290 YANKEE) FOR TEST PURPOSES ONLY. TESTING IS TO BE ACCOMPLISHED THREE HOURS PER DAY, EXCEPT WEEKENDS AND CANADIAN HOLIDAYS. TESTING SHOULD BEGIN EACH DAY AT 1900Z. THESE TRANSMISSIONS ARE FOR TEST PURPOSES ONLY AND SHOULD NOT BE USED FOR NAVIGATION OR TIMING PURPOSES. THESE TRANSMISSIONS WILL BE SUBJECT TO UNANNOUNCED AND FREQUENT CHANGES IN TIMING, PULSE SHAPE, FUNCTION AND SIGNAL STRENGTH."

Special Armed Forces Day cross band communications were followed by M. Stuart, DE for a portion of the 12 hour event. Various Amateur stations worked NMH, USCG, Washington, DC, NAV, Hq ISN-USMC MARS Radio Station, Washington, DC, and NPL, USN San Diego on USN-USMC MARS frequencies i.e., 20936, 14383, and 14441.5 kH for the 12 hour period of operation on Armed Forces Day.

I received a nice letter from Peter Rouse in the Channel Islands. You may recall I mentioned in the October column that Peter wrote a Utility column for a British SWL magazine. His May column had a portion devoted to comments regarding "Spy Numbers" broadcasts.

His recent letter contained an interesting bit of information concerning monitoring on his side of the pond. "You may be interested to know that the SSB Utilities column only started in the magazine this year. Unfortunately, the British authorities have been paranoid about people listening in to any transmissions other than those from broadcast stations or radio hams. During the last few years they seem to have realized that you could not stop people from using HF receivers and scanners and they seem to have relaxed a little."

I plan to stay in touch with Peter and perhaps from time to time we can swap some items of interest for *POP'COMM* readers and the readers of his column.

Before we move on to the loggings, I wish to again express my appreciation to all contributors and in particular to those overseas. We here in the States tend to complain about the postage rates, but those overseas have to pay double our costs.

Ute Loggings
All Times UTC

13.6: OMEGA Navigation Beacon. Two tones each 1 sec duration, then pause of 7.6 sec then another two tones, etc. (Webb, CA)

77.5: DCF77, Norddeich, GFR at 2120 w/time signals. (Boender, Netherlands)

100: LORSTA 8290 Yankee, Williams Lake. Loran-C NOCUS signals hrd at 1904. (Vaage, CA)

147.30: DDH47, Deutsche Wetterdienst at 2115 w/wx. (Boender, Netherlands)

206: Beacon AJR, Cornelia, GA at 1100. (Crabill, VA)

208: YSK, Saniklaug, NWT, Canada at 1104. (Crabill, VA)

230: Beacon BU, Colombus, OH at 0222. (Crabill, VA)

232: Beacon GP, Gaspe, PQ, Canada at 0934. (Crabill, VA)

245: Beacon CRR, Circle, MT at 1227. (Arens, BC, Canada)

257: Beacon MWX, Montpelier, VT at 0917; Beacon TEC, Blacksburg, VA at 0615. (Crabill, VA)

260: Beacon X, Prince George, BC, Canada at 1257. (Arens, BC, Canada)

272: Beacon CQ, La Grande, PQ, Canada at 1028. (Crabill, VA)

274: Beacon AKQ, Wakefield, VA at 1240. (Crabill, VA)

304: Beacon BH, Boston, MA at 0840; Beacon MP, McNab Pt. Light, Ont., Canada at 2202. (Crabill, VA)

326: Beacon XJ, Fort Saint John, BC, Canada. (Arens, BC, Canada)

329: Beacon AAU, Ashland, OH at 0953; Beacon IWH, Wabash, IA at 0444; Beacon JV, (possibly LSB of JVY on 331 kHz w/new call) at 0429. (Crabill, VA)

338: Beacon ZU, Whitecourt, AB, Canada at 1300. (Arens, BC, Canada)

359: Beacon BO, Boise, ID at 1258. (Arens, BC, Canada)

362: Beacon CA, Colombia, SC at 0327; Beacon SUR, Fitzgerald, GA at 0517. (Crabill, VA)

365: Beacon YKK, u/i at 2325. (Ed.)

374: Beacon LW, Lewiston, ID at 1055. (Arens, BC, Canada)

394: Beacon DQ, Dawson Creek, BC, Canada at 1325. (Arens, BC, Canada)

416: Beacon BKL, Cleveland, OH at 0336. (Crabill, VA)

419: Beacon EVB, New Smyrna Beach, FL at 0419. (Crabill, VA)

420: Beacon CEK, Crete, NE at 1145. (Crabill, VA)

421: PCH, Scheveningen, Holland in cW at 0850 w/tfc list. (Boender, Netherlands)

425: MV Earl Trader in CW at 1514 wkg Norddeich Radio, FRG,. (Boender, Netherlands)

458: GND, Stonehaven, England in CW at 0840. (Boender, Netherlands)

467: OST, Oostende, Belgium in CW at 0622. (Boender, Netherlands)

474: DAN, Norddeich, GFR in CW at 2130 w/tfc list. (Boender, Netherlands)

489: UKB, Riga, USSR w/unid ship in CW at 0935. (Boender, Netherlands)

512: UOYA, MV Nefte Rudovoz 47 in CW at 2106 w/msg to NAVITANKURALS, order for gas/oil. (Boender, Netherlands)

1610: KNEC 996, near San Bernadino, CA at 2149. Caltrans Highway Advisory radio to motorists w/Cajon Pass wx reports. (Vaage, CA)

2285: T5RX DE A6DX in CW at 2130 w/short coded msgs; A6DX DE T5RX w/short coded msgs at 2135; L2BX DE 5RSC w/short coded msgs at 1915; 5RSC DE L2BX w/short coded msgs at 1920; and SXGZ DE X5TC w/QTC 117 20 24 2307 & coded msgs at 2110. These transmissions always in frequency pairs, same pairs. See 4058 entry. (Boender, Netherlands)

2716: USS Fletcher (NJCN, DD992) in USB at 0431 wkg San Diego Control One (NPL) re rendezvousing w/TIGER-62. Fletcher ref'd himself and USS Downes (FF1070) approaching their anchorage. Much talk re bridge-bridge channels 6 &12. (Sabo, CA)

2716: Navy Bermuda Control clg NOKB, USS Champion MCM4 at 0825. Bermuda Port Ops attempting to raise this Sweeper; NPDP, USN Tug YTB771 Keokuk, making short count test while transiting Cape Cod Canal at 0100; NZLL, USS Connoledd FF1056 clg Newport Port Control at 1010 but no joy; CGZP, HMCS Nipigon DDH226 wkg QHM Halifax at 0945. Nipigon was confirming berth assignments and eta into N.S.; NFVC, USS Capodanno FF1093 clg Navy New Orleans Control at 0850. Capo had bad emittor, making transmission garbled & motorboating; NCAR, USS Carr FFG52 clg Charleston Navy Tug Control at 0920. (Stuart, DE)

3032: LOCALIZER (YL opr) w/unanswered calls to ABSTAINER in USB at 0335. She called this channel "Whiskey 100." (Sabo, CA)

3659: P8K, u/i stn in CW at 2020 w/VVV DE P8K + msgs. (Boender, Netherlands)

3732: SLHFB "P" transmission stops and CQ DE URB2, Klaipeda, USSR idle strip started then into Russian commercial ship tfc list then into tfc for ships. CW at 0100. (White, ME)

3837: SLHFB "P" at 2218. (Boender, Netherlands)

4058: Continuous calling in CW by 2MBV at 2055; HX7JH at 2133; 4B7Cf at 2120 and Q8TC at 2215. (Boender, Netherlands)

4066.1: NMFG, USS Peleliu LHA5 clg San Diego CSS1 at 0610. The Peleliu, an ambulance warfare helo landing carrier was attempting to raise CSS1 for a p/p. (Stuart, DE)

4134.4: NBTM, USCGC Polar Star WAGB10 clg USCG CAMSPAC San Francisco at 0845. Polar Star also came up on 6 MHz SCN as CAMSPAC did not respond on 4 MHz SCN. (Stuart, DE)

4143.6: M/V Laney Chouest in USB at 0349 wkg 12-OSCAR re notifying NATIVE ECHO that electrical

ground problem was fixed. 12-OSCAR advised he couldn't hr vsl and wud call back in 20 mins. Laney Chouest is a civilian vsl leased by Navy and carries the deep-diving Sea Cliff (DSV4) and Turtle (DSV8). (Sabo, CA)

4420/4128: WOO, Ocean Gate, NY to Molly Brown. "Unable read you, check ur Xmtr, Bermuda Coast Guard on the line (ship in distress) at 0115. At 0118 trys again contact ship, finally makes contact & WOO asks is everything alright and advised standby and send up red flares. NY Harbour notifying USCG in Miami. (Garcia, OH)

4500: USCG ComSta Miami in comms at 0158 re ship/boat in distress in Bermuda Triangle area. The "Alfa" taking in water, concerned re passenger & can they get in life rafts. If so to get in them and get off ship and continue to "Walkabout" which is standing by near the "Alfa," Walkabout only has small dingy & cannot help in evacuation. QRM on freq from San Francisco CG wkg on another distress. (Garcia, OH)

4520: New Jersey Army Reserves weekly radio net, Fridays 1400. Army Armory at West Trenton, NJ was net control. Cld roll of abt 35 units in alpha order of location. Some units were Army Maint., Bordentown, Ft. Dix Hi-Tech Training Center, Army Mint, Ft. Drum. USB at 1400. (Woody, NY)

4577: AFA2HB & AGA2SH, AF MARS net passing tfc and comm cks. USB at 0020. Placenames mentioned were Hendersonville, Mount Airey, NC. (DP, NC)

4634.5: Gulf of Mexico petroleum-related tfc in USB at 0429. KPT9019 (vsl) wkg KAF466, Lafayette. Lotsa talk re "the Chevron job." (Sabo, CA)

4640: YL/?? in AM at 0038 w/3 + 2F grps. Sig tunes like USB in USB mode but comes in like AM stn in AM mode. Drops out if I try LSB mode. No carrier registers on upper side in CW mode. (DP, NC)

4850/4900: Two OM/EE in LSB Victor 3 Xray to Yankee 7 Sierra something about changing to #3 in about 5 mikes. At 0144 XXX comms on freq. Very frustrated OMs here. Mentioned Army. Zero Mike to Two Uniform. XXX language continued. (Garcia, OH)

5177: CW series of NNN being sent from 1900-1905. Then YL/GG w/Gruppe 20 x3 and into 5F grps. (Mason, England)

5189: U/i calls XOF, NMV & ABX in CW at 0114. Apparently XOF has sent a msg and is asking for QSL's from others. XOF can't hear ABX. Both stns coming in fine hr. (DP, NC) Possibly Cuban Navy or Border Guard. (Ed.)

5246: Alert 1 clg Cape Osborne. Alert units are P3C type a/c. USB at 1113. Dod Cape up on freq at 1125. (Woody, NY)

5264: Ten min bcst of 4-character grps. Msg was 4 grps in length. MCW mode at 0030. Parallel freq 6792 kHz. DF bearings on both freqs 240/good. Bearing check on KKN50 was 245. (White, ME)

5320: ComSta New Orleans (NMG) wkg USCGC Steadfast. (TSTF, WMEC623) in USB mode at 0549. (Sabo, CA)

5655: Hong Kong Aeradio hrd weak w/calls to u/i a/c in USB mode at 1424. (Sabo, CA)

6200: Two OM/EE at 2031 w/barge comms re hook-ups & travel arrangements on the river. Later two OM/SS w/comms re appointments, mentioned Havana, Cuba. Digital noise on freq. Lots of boat and barge tfc this freq. (Garcia, OH)

6200: HMCS Porte Quebec (YNG-185) at 0240 w/lengthy PT msg tfc to Vancouver Military (not hrd), was still going at 0300; on top of this, USCGC Spar (NODV, WLB-403) at 0250 wkg ComSta Boston (NMF) then both moved up to 6518.8 at 0253; M/V Matsonia (KHRC) wkg USCG CAMSPAC at 0342; USS Sampson (NZXF, DDG10) at 0634 w/brief comms to ComSta Miami (NMA), foll by vsl w/call PZAF w/wx obs to NMA fm 0634-0636, and 6YSJ w/similar tfc fm 0636-0637; finally USS Sampson back to NMA at 0638 re TTY comms. NMA seemed have a p630 sked w/USN ships for awhile, since on another evening at 0636 USS Kidd (NKID, DDG993) was hrd wkg NMA re TTY tfc. All were USB mode, duplex wkg w/6506.4 kHz. (Sabo, CA)

6200: NNGR, USCGG Tamaroa WMEC166 clg WCG, ComSta Boston at 0100. Tamaroa is a WWII era former Navy Ocean Tug transferred to the USCG in 1946; NODL, USCGC Firebush WLB393 wkg USCG ComSta Kodiak w/request for tfc list; NFMK, USCGC Seneca WMEC906 wkg USCG ComSta Portsmouth (on 6506.4 kHz) at 2115; NORW, USCGC Jefferson Island WPB1340 wkg USCG ComSta Miami at 0140. Jefferson Island is brand new Patrol Boat operational for the USCG. (Stuart, DE)

6385: PPD, Brasilia, Brazil in CW at 0020 w/short msg. (DP, NC)

6506.4: USCG ComSta Guam w/wx and Marine conditions for surrounding area at 0935. NRV is not always audible here. (Stuart, DE)

6675: CW stn rptng 58102 in MCW at 2000 then into 5F. At 2100 on this Czech stns twin freq of 4740 kHz MCW sending 14287 and into 5F grps. (Mason, England)

6708: YL/GG rptng 644 x3, 12651, 059 from 2000-2005. Then 5 tones and into 5F grps. Also on 7375 kHz. Every Tuesday. (Mason, England)

6712: KING-60 wkg Ops w/HF rdo check in USB mode at 0441. KING-60 is a tactical call for aerial rescue & recovery a/c, and Moffett Rescue has been hrd on this channel before. (There's a USAFR ARR Squadron stationed at NAS Moffet). (Sabo, CA)

6716: Andrews AFB requesting position report from "973." USB at 0158. (Kinsland, GA)

6738: SAC wkg "Skybird" and COHO 36 & 21 w/wx info ID as 8 Bravo India and signed off at 0055. (Garcia, OH)

6750: Spar 64 VIP flight to Rogers AFB w/pp at 0529-0531 in USB. (Scalzo, PQ, Canada)

6753: Trenton Military, OM/EE sending terminal forecasts for Canadian cities in USB at 0130. (Kinsland, GA)

6761: TACO16 CALLING ANY STATION, then SKYBIRD THIS IS FOREMOST SIERRA391 HBL43 MESSAGE FOLLOWS - HBL43YRNWTSZD4VWW-YC4DNI6M (given in phonetics) SWITCHBOARD OUT. USB at 0056. (DP, NC)

6767: U/i sending 5L grps in CW from 0133 to 0141. (Kinsland, GA)

6775: USAF MARS net in USB mode at 0320 w/much talk re packet comms & discussion of whether or not they should allow Region 5 stns to use Region 6 net freq. Calls incl AFA6VB, AFN6AT, AFA6UX, AFA-5PL, AFA6HF, and AFA5DA. Latter stn not hrd. (Sabo, CA)

6780: Norfolk Shipyard Control w/USS Kittyhawk w/pp's re radar problems. Ship was off Breezy Point, NY. USB at 1357. (Woody, NY)

6788.5: Skipper clg Atlantic Dorothy, Atlantic Norma and other Atlantic ships. USB at 1028. (Woody, NY)

6840: YL/SS w/short 4 grp msg of 4F grps rptd exactly 10 minutes. Bcst preceded by ten tones. DF bearing 245. Bearing check KKN50 245. Any connection??? (White, ME)

6855: YL/SS w/5F grps in AM mode at 0708. Freqs 7429 & 8186 kHz also active w/similar tfc at this time. (Sabo, CA)

7034: SLHFB "P" idling weakly. Sounds like one associated with C/D/S, but none of them heard with "P" at 2312. (White, ME)

7038: SLHFB "D" at 0030 and later before 0100 "C" was hrd. (White, ME)

7185: Shuttle Colombia (WA3NAN Goddard Space Center relay) at 1530. Crew experimenting bio-chemistry on body adaptation to gravity and space life low gravity and fluids experiments. (Garcia, OH)

7375: YL/GG rptng 252 x3, 94033, 081 between 0600-0605. After 5 tones into 5F grps. American bcst stn in background. Anyone know which station this is? (Mason, England) US Pirate stations have used this freq in past. (Ed.)

7409: INU DE FTD (both u/i) in CW at 2330. Simplexk operations w/one passing 5L/F. Use of MW (Spanish Nyeh) plus Cyrillic characters DAHDAHDAH-DAH and DAHDAHDAHDIT. After msg FTD cld another stn and passed same type tfc. (DP, NC)

7485: NJUZ, USS Dahlgren DDG43 wkg SESEF Charleston at 1920 for emittor tests. (Stuart, DE)

7527: PING-PONG and GULF-70 in USB moded at 0413 re GULF-70 being unable to go secure because his secure gear wasn't coded. This is DEA channel ZB. (Sabo, CA)

7533.5: NNN0MTP (USMC MARS, 29 Palms, CA) wkg NNN0NRG w/tfc. USB at 1859. (Sabo, CA)

7535:NTGS, USS Spartanburg County LST1192 at 1510 trying wrk SESEF but ship had bad squeal in their emitter & unable work SESEF; NESEA San Diego w/rdo check w/Norfolk SESEF at 1830. NESEA is an Engineering Center and they made R/C w/Norfolk; US Navy SEALS - Navy Special Warfare Group using call-

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sign NSWG Van 7 wkg Norfolk SESEF at 1900; Other tests with SESEF were by NHUE, USS Hue City CG66 at 1205; NADQ, USS Grasp ARS51 at 1900; NWIS, USS Wisconsin BB64 at 1800; NIEY, USNS Bold T-AGOS-12 at 1750. (Stuart, DE)

7725: 10 tones then YL/SS w/3 grp msg of 4F grps. Rptd from 1030-40. Dualing w/10324 kHz. DF Bearings were 230 and 245, both fair quality. (White, ME)

7786.2: RMD, Moscow, USSR w/call of DE RMD QTA 4 K in CW at 0600. (Scalzo, PQ, Canada)

7831: NOONTIME wkg SPLENDID, TAME FOX, and WAR46. NOON-TIME advised keeping this channel (W-105) as primary and W-109 (13247 kHz) as secondary. USB at 0708. (Sabo, CA)

7846: Foghorn-like sound that begins with a tone burst. Every 10-20 secs. Variations in sig strength suggest more than one xmtr location. Hrd every night, all night. (Penson, MN)

7888: YL/SS w/5/F grps in AM at 0626. A bcb stn could be hrd in background w/music. (Scalzo, PQ, Canada)

8066: YL/SS in AM at 0601 rpts "Atencion 784-04" until 0604, then "04-130" x5 and into 5F grps. Final x3 at 0617. (Sabo, CA)

8241.5: At 0612, USCG Polar Sea (NRUO, WAGB-11) to ComSta Portsmouth (NMN) for pp freq, ComSta told him to go to "8718.9 window"; at 0659, USCGC Laurel (NRPJ, WLB-291) wkg ComSta New Orleans (NMG) w/tfc re ATON Ops incl advisory of a light buoy extinguished due to an accumulation of guano on its solar panel; at 0727, USCGC Kiska (NSFU, WPB-1336) wkg ComSta Honolulu (NMO) re setting up comm sked. All were USB, duplex wkg w/8765.4 kHz. (Sabo, CA)

8241.5: NRPZ, USCGC Papaw WLB308 clg USCG ComSta New Orleans at 0110. Papaw, former WWII USN vessel requested a RTTY freq; GBBE, HMS Warship Edinburgh D97 clg Portishead Radio at 0930 to request pp from Portishead to a UK number. (Stuart, DE)

8458: ROT, Navy, Moscow, USSR in CW at 2230 w/call mkr. (Boender, Netherlands)

8465: UJY, Kalingrad, USSR in CW at 2153 w/call mkr. (Boender, Netherlands)

8550: TBA5, Navy Ankara, Turkey in CW at 2244 w/call mkr. (Boender, Netherlands)

8571: UFN, Novorossiysk, USSR in CW at 2252 w/DE UFN USY6 TEST QSX 4181.8/8370/12555 kHz. (Boender, Netherlands)

8660: UJQ7, Kiyev, USSR in CW at 0142 w/CQ DE UJQ7 QSX 8360.4 12540.6. (Boender, Netherlands)

8719: NTWX, USS Hoist ARS40 wkg COMSUPRON-8 and USCG ComSta Portsmouth (NMN) re downed USN Helo and sonar position being marked by buoys. Helo was in the water and Hoist was above its position, unknown how many POB or if they were lost. Hrd at 0840. (Stuart, DE)

8811: WLO, Mobile, Al w/tfc report & pp w/YL somewhere at sea on ship. (Garcia, OH)

8906: Sta Maria wkg several airlines at 2200 hours. Hrd Air France, United & American airlines asking for positions. Very weak sigs. (Garcia, OH)

8951: Tokyo Aeradio in USB mode at 0911 wkg Northwest-20 w/advisory of ATC clearance for flight level 350. (Sabo, CA)

8967: MAC 5685K w/request for Zaragosa Air Base wx. USB at 0545. (Woody, NY)

8972: A/c Sierra-4-Juliette-Golf w/3MB advising rdo ck w/Cape Radio was complete. Also hrd Hurdy-Gurdy-01, 9WP. USB at 0510. (Woody, NY)

8972: Scrambled speech transmissions. Each foll by a data burst. Hrd at 0355. (Penson, MN)

9009: Navy 110 advising WMS5 that they were running the tactical program. Total of 25 tracks incl 4 test targets. USB at 2004. (Willmer, MI)

9017: REGISTER to CAMEL RUG in USB mode at 0321, then into secure comm's from 0322-0322; foll by REGISTER w/unanswered calls to BELLY FLOP at 0334; then at 0334 to DISPENSE w/advisory that he was going "monitor only," and requested a primary, secondary and "working table." DISPENSE advised that X-904 (this freq) was primary, P-381 (5700 kHz) was secondary, and the working table was number three. (Sabo, CA)

9029: CW mkr m/V's but no spacing. DE KLSJ QSA 1 QSA2. Hrd at 0821. (Scalzo, PQ, Canada)

9090: YL/EE on AM at 2108 w/488 + 10 count. At 2110 sent a 3/2F msg, count 76, and a rpt 2117-2124, but no s/off. (Margolis, IL)

9130: MARSHMALLOW in p/p to STINGRAY. Mentioned Panama, base camps, helio overflights, and constructions. USB at 0145. (Willmer, MI)

9140: YL/EE in AM at 0236 w/5F grps, very strong sig. (Scalzo, PQ, Canada)

9251: YL/EE w/200 grps after "Lincolnshire Poacher" tune everyday from on the hour to 45 mins past during European evenings (1700-2300 UTC). Also simulcast on 7887 and 8464 kHz. All three freqs heavily jammed by warblers. (Mason, England)

10096: EXPRESS 051 wkg MAIQUETIA CENTER requesting VHF freqs. USB at 0150. (Willmer, MI)

10125: U/i stn in CW at 1408 w/5F (cut nbrs). DF bearing 235. (White, ME)

10194: CHRISTMAS CAROL in duplex net w/ACROBAT wkg on comms problems LSB at 1620. (Willmer, MI)

10242: HAMMER wkg a/c 17 in USB at 1833 on Customs Service channel TA; on another day 207 wkg SHIDIG clear & secure in drug interdiction ops at 1844. (Sabo, CA)

10493: WGY 907, Kansas City, MO and WGY 912, FEMA Special Facility, Berryville, VA w/rdo checks. They QSY'd to Fox 34 (12216 kHz), QSY'd again to Fox 36 (13446 kHz). USB at 1651. (Scalzo, PQ, Canada)

10493: WGY936 (FEMA, Santa FE, NM) w/unanswered calls to WGY906 (Denton, TX) in USB mode at 1444; was answered by WGY912. 936 asked 912 to try to contact 906. 912 couldn't get answer either. (Sabo, CA)

10493: WGY912 testing RTTY w/WGY905 (Battle Creek, MI) WGY906, WGY907, and WGY908 (Denver, CO) on 14776 kHz (F42). WGY912 also wanted to test KL-43 modem but other stns unable do so. USB at 1630. (Willmer, MI)

10560: OM/SS dictates msg in 3L grps using phonetics. Live b/c on USB at 2301. At 2310 dictates PT msg in SS. (Margolis, IL)

10600: YL/SS w/4F grps in RCS at 0115. (Willmer, MI)

10644: SLHFB "S," Arkhangelsk, USSR in CW at 0125. (Margolis, IL)

11191: USN Anti Sub Warfare net w/tactical comms. In the net: R0G, S9S, J8S and REPORTER. Comms went Green a few times (Scrambled). 0400-0600 in USB. (Scalzo, PQ, Canada)

11205: USCGC Decisive (WMEC 629), USS Boone (FFG28), and King 1 wkg DOD Cape supporting Shuttle Colombia launch in USB at 1320. (Willmer, MI)

11300: Military Air Force 105 wkg NY for position & destination at 1025 hrs. MAC 285 for altitude. MAC 2 ZULU 1 for positionk at 1028. At 1033 Air Force 105 gives destination as Bermuda, to contact Bermuda on 128.5 MHz when near. This was primary freq, secondary was 11306 kHz. (Garcia, OH)

11491: Ten tones then YL/SS w/short msg (3 grps) of 4F grps. This is daily sked at 1830 UTC. Simulcast on 16310 kHz. DF bearing 240, fair. (White, ME)

11532: YL/SS in AM mode at 0213 w/5F grps. Final, final at 0216. (Sabo, CA)

12689: UQK, Riga, USSR in CW at 0840 w/DE UQK QSX 4184.6/12553.8/16738.4/22244. (Boender, Netherlands)

12740: HWN, Navy Paris, France in CW at 1033 w/call mkr. (Boender, Netherlands)

12975.2: IQX, Trieste, Italy w/VVV mkr in CW at 0635. (Scalzo, PQ, Canada)

13114: NMN, CommSta Portsmouth sending North Atlantic wx. OM/EE in USB fm 1130-1138. (Kinland, GA)

13117: WOM, Pennsuco, FL clg "Any station from Whiskey Oscar Mike on 1206. Come in." In USB at 0233. (Kinsland, GA)

13139: Halifax CG Radio sending "Open Sea Forecasts" in USB fm 0212-0214. (Kinsland, GA)

13201: Andersen (AIE2) wkg AUSSIE-227 in USB mode at 0748. Great sigs from Andersen. (Sabo, CA)

13375.5: U/i in CW at 1941 w/5L grps (cut nbrs) using ADGIMNRTUW. (Margolis, IL)

13446: WGY907, Kansas City, MO & WGY912, Berryville, VA w/sig checks & equip changes. WGY904, Thomasville, GA joined the group, commenting that low sig on his end due to intense magnetic storm & he wud swing his antenna around. USB at 0701. (Scalzo, PQ, Canada)

13457: KCP63 (FAA Longmont, CO) wkg DARK STAR-PAPA w/pp to RED DOG OPS. DARK STAR-PAPA also id'd as RED DOG-25. RED DOG-10 also came up on freq. USB from 1848-1853. (Sabo, CA)

13565: YL/SS rptng 465 02 until 1208 in AM then 02 40 (x5) and into 5F grps. (Willmer, MI)

13600: PAT 02 attempting pp thru Cape Radio but no joy due to geomagnetic storm. QSY'd to 9043 kHz but still no joy. mUSB at 1916. (Willmer, MI)

13630: KDM-45, San Juan, PR w/KDM-49, Atlanta, GA (FAA) at 2111. KUU-97, St. Croix, VI joined net at 2215. KRC-88, St. Thomas in at 2233. Steve on a/c Gulfstream November 1 wanted ATC Supervisor at San Juan to come on mike at 2250. Sounded like a drill. All USB. (Woody, NY)

13656: SLHFB "C" (loudest), "S," "P" (audio filter shows "C" is highest in pitch, with "P" next, and "S" lowest). Hrd at 1645. At 0701 hrd SLHFB "D." (White, ME)

13826: NNAL, USS Abraham Lincoln CVN72 (NNN0NAL) wkg NNN0PRQ at 0940 w/routine pp tfc. The Lincoln battle group had been diverted to Subic Bay, R.P. to evacuate American citizens due to Pinatuba Volcano eruption. (Stuart, DE)

13927: USAF MARS net in USB at 0055 incl AFA2)F and AFA0BO. (Sabo, CA)

14383.5: NHKG, USS Ranger CV61 NNN0CTH wkg NNN0NPN NACCAMWESTPAC Guam at 0855. (Stuart, DE)

14408: AIR, USAF MARS, Andrews AFB, MD in USB from 0142-0153 clg CQ for stns wishing to participate in cross-band test for Armed Forces Day advised he listening on 14243 kHz. I could hear HAM stns answering that freq, tho AIR didn't seem to hear them. (Sabo, CA)

14441.5: NQRA, USS Worden CG18 NNN0CNL wkg NNN0NRJ at 0105. This Cruiser, homeported at Pearl Harbor is very rarely on MARS; NDIT, USCGC Mellon WHEC717 NNN0NXV clg NNN0NUW at 0130. Mellon was looking for a Washington State MARS stn. (Stuart, DE)

14487: YL/SS in AM 2350 w/Atencion then 5F grps. (Garcia, OH)

14615: VHM, Darwin, Australia (Navy ComSta) exchanging short drill msgs in CW at 1525 w/VHK Canberra Navy ComSta. These are local areas Nav CommSta (NAVCALS). Poss monthly training exercise. For info, other NAVCALS are VHX, Cairns, QLD; VHD, Sydney, NSW; VHN, Nowra, NSW; VHY, Fremantle, WA and VHU, Exmouth, WA. (Chinaski, Italy)

14622: YL/GG rptng Whiskey Lima from 1900-1905 then tones and into 5F grps for 115 and 026. (Mason, England)

14686: ATLAS (Rockwell Collins rdo facility, Cedar Rapids, IA) wkg AMBUSH (USAF/ANG radar unit,

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CIRCLE 11 ON READER SERVICE CARD

Dominican Republic) for patch for WARRIOR(u/i). This is Customs Service "Papa" channel. USB at 0107. (Sabo, CA)

14789.3: Stn in CW w/5F, ended w/HHUT x2 at 0420. Start up at 0426 w/ZDP. (Scalzo, PQ, Canada)

14818.5: NNN0NCA (USCG LORSTA Marcus Island) wkg NNN0UTG (in Hawaii) in USB fm 0508-0513. NNN0NCA was xmtng about .2 kHz lower. (Sabo, CA)

14902: WIGWAM 109 (NE-CAP) on USB at 1633 w/CONUS CAP net roll call. (Margolis, IL)

14930: YL/EE rptng 960 x3, 96096, 051 fm 2100-2105. After five tones into 5F grps. Also on 11190 kHz. (Mason, England)

15875: USCG LORSTA Marcus (NRV6) in USB at 0629 wkg LORSTA Iwo Jima (NRT3) w/talk re coming up on their 17 MHz channel. Then Marcus to Guam ComSta (NRV) at 0633. Good sign on Marcus & Iwo but Guam not hrd; USCG LORMONSTA Yokota (NRT) wkg USAF LORSTA Kwanju, S. Korea in USB at 0846. (Sabo, CA)

16000: NVG, Belconnen, Australia time station. Moved here from 15000 kHz on 8 May. Hrd 0544. (Vaage, CA)

16055: YL rptng Delta Bravo fm 0830-0835 w/electronic tones. Then YL/GG w/5F grps for 848 and 329. (Mason, England)

16463.1: Warship HMS Ariadne (GNUL, F72) w/unanswered calls to Portishead Radio. USB 2140-2146. QSL reply for this reception included an 8x10 glossy of the ship, stamped PFC, and a personal letter from the Radio Supervisor. (Sabo, CA)

16534.4: NOAAS Malcolm Baldridge (R-103) ID'ing w/int'l c/s WTER w/unanswered calls to ComSta Honolulu in USB at 2224. Vessel was formerly known as NOAAS Researcher. QSL reply from this ship included note re name change and color postcard of the ship. (Sabo, CA)

16954.6: GKB, Portishead, England in CW w/mkr. (Scalzo, PQ, Canada)

16958: FUJ, Noumea Naval Radio, New Caledonia w/VVV mkr at 0734 in CW. (Scalzo, PQ, Canada)

17018: SLHFB's "P" and "C" hrd at 1018. Ref shows both located at Kaliningrad, USSR. (Boender, Netherlands)

17021: TAH, Istanbul, Turkey in CW at 1055 w/tfc list. (Boender, Netherlands)

17263.9: HEB17, Berne, Switzerland w/tfc list read by OM/ee on USB at 1730. (Margolis, IL)

17413.5: KKN39, US State Dept looking for tfc in CW at 0010. (Vaage, CA)

17443: U/i in CW at 1418 w/msg consisting of 3-aphanumeric grps. (Margolis, IL)

17901: Hurricane Hunters Ops during several Caribbean hurricanes. USB mode. Reports about every four hours during a declared hurricane. (Woody, NY)

18171: ATLAS wkg 790 in USB 0246-0254 on Customs Service channel "SI." (Sabo, CA)

18443: IPG20, MFA, Rome, Italy w/OM/II in comms after RTTY xmsn. Was on USB at 1548. (Margolis, IL)

18536: YL/EE w/1-0 count and 865 from 2100-2110. Then ten tones Count 225 and into 3/2F grps. Heavy echo suggesting twin path to my QTH. (Mason, England)

18756: 7RQ20, Algerian MFA stn E1 Djaza, Iraq w/msgs re Iraq/Kuwait in CW at 0850. (Boender, Netherlands)

18880: YL/EE in AM at 1625 with 3/2F grps (x2). (Willmer, MI)

19295: YL rptng Bravo Uniform from 0830-0835 w/electronic tones. At 0835 YL/GG w/5F grps for 073 and 608. (Mason, England)

20192: Patrick AFB w/pp's during STS-36 launch. Also 20198.5 kHz. Both LSB at 1245. (Woody, NY)

20524: YL/EE w/1-0 count and 868 from 1400-1410. Then ten tones and into 3/2F grps. Also on 15938 kHz. (Mason, England)

21395: Space Shuttle Atlantis (via repeater at Goddard Space Center) in USB at 1850. Crew & Mission Control w/flightnotes & checks; Space Shuttle Colombia (also via Goddard repeater) in USB at 1640 conversation re experiments. (Boender, Netherlands)

21754: CONSIDERATION w/alfa tfc on PACAF "U" channel USB at 0012. (Sabo, CA)

25130: ROT, Soviet Navy, Moscow in CW at 0918 w/VVV CQ DE ROT QSX 22269.5 KGC. (Boender, Netherlands) ■

You Should Know

(from page 42)

trol settings. Many AGC circuits in contemporary receivers give a choice of two or more "speeds," and also let you switch that circuit off. Experimenting with these settings can make a big difference in what you hear. For example, if a signal is fading rapidly, and your AGC is set to "slow," the result can be a signal that's fading faster than your AGC can keep up. In this case, the AGC just adds to the distortion you hear! The opposite can happen if you have your AGC set to "fast," but the signal is fading slowly. In these cases, try setting your AGC to a different speed or even switching it off altogether.

Finally, try varying the RF gain of your receiver. Sometimes this reduces the effects of fading, while in other cases it makes the situation worse. However, you can't hurt anything by trying!

Fading, unfortunately, is an inescapable fact of life on shortwave. And while frustrating, I actually find it part of the romance of shortwave. If you want crystal-clear reception, go buy yourself a satellite dish!

Editor's Note: Harry Helms is the editor of the Umbra et Lux newsletter, c/o DX/SWL Press, 10606-8 Camino Ruiz #174, San Diego, CA 92126. ■

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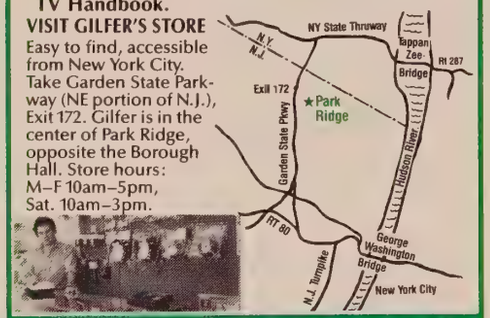

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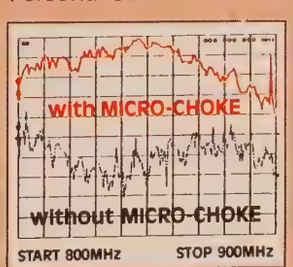

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CIRCLE 146 ON READER SERVICE CARD

SCANNING VHF/UHF

BY CHUCK GYSI, N2DUP

MONITORING THE 30 TO 900 MHz "ACTION" BANDS

How about starting off with a bunch of scanning tips this month?

Is that channel locked up on your scanner a birdie or an actual carrier (i.e., stuck microphone)? One quick way to tell is to unplug the antenna. If the signal remains on the channel with the antenna unplugged, then you have a birdie, an internally generated product typical of many scanners. If the signal goes away when the antenna is unplugged, then you've stumbled across a transmitter stuck on.

What are some of the best frequencies to monitor no matter where you travel? Your best bet is to program in some of the following channels: 155.475, the national police emergency channel, often used for mutual aid purposes; 155.370, a national point-to-point police channel often used in many areas for all-points bullentins; 151.625, an itinerant business channel used by many functions that travel around the country; 464.500 and 464.550, the same as 151.625; 33.70, when the skip comes rolling in, you're bound to hear a fire department somewhere in the United States (or even radio communications from another country such as in South America) on this channel; 462.675, a national emergency channel used by individuals and monitored by REACT and other public safety groups across the United States; 155.340, you're bound to hear ambulances en route to hospitals on this channel as they give condition reports; 156.800, if you're near any body of water, you'll hear this being used as marine Channel 16 for calling and emergency purposes; and 146.520, this is the national simplex frequency used by hams who wish to make short-range contacts without the use of repeaters. With those 10 channels programmed into your scanner, you're bound to hear some exciting scanner activity no matter where you travel in this country.

What's a good way to tell if higher frequency scanner signals, such as VHF high band and UHF, might be receivable? If you have a regular antenna on your TV and not cable service, flip through the normally vacant channels on the set. If you don't normally receive a Channel 14, but one's coming in crystal clear tonight, you may want to do some UHF DX'ing on your scanner. The TV is a pretty reliable forecaster.

What's the best way to program a weather broadcast channel in your scanner? If you don't normally use the priority channel on your radio, put the local weather broadcast channel into your priority channel. Now lock it out from scanning. Now anytime you want to monitor the weather frequency, punch the priority button on your scanner and the weather channel will be activated within a second. To resume normal scanning after you've monitored the broadcast, push the priority button again to disable the function.

Where's the best place to mount your mobile scanner antenna? Try the center of the roof if possible. If that's not possible and you've gravitated toward a trunk-mount antenna, mount it in the middle of the trunk to afford reception in more equal distances around you. The higher up and closer to the center of the car will make reception better.

How come you can hear the mobile units crystal clear on some channels, but scratchy on others? First of all, if the station you are listening to isn't close by and the mobiles come in good all the time, chances are your listening subject is using a repeater station to relay the signals from mobiles or handheld radios to a high retransmission site. This allows all mobile and handheld radios in the system to hear the other mobile or portable units on a consistent basis. It also affords greater mobile-to-mobile coverage between two points, especially if the repeater relay transmitter is located between the two subjects attempting to communicate. Another trick in telling whether or not the mobiles you are hearing are using a repeater is to listen for the tell-tale "squelch tail" noise. If you still seem to hear a transmitter on the air for a few seconds after the mobile is done transmitting, chances are a repeater is being used to extend the mobiles' coverage area.

What's the best way of getting around some states' mobile scanner laws? In some of the states that regulate or outright ban the use of scanners in motor vehicles, there may be exemptions for Amateur Radio operators. If that's the case, it would be recommended that you obtain at least the new entry-level no-code Technician Class license to cover your activity. The no-code test doesn't require you to demonstrate proficiency in the reception of Morse code any more and the 55-question test has proven a cinch for many scanner hobbyists who have taken the test since it was introduced to the public early this year. The no-code class license gives the licensee access all frequencies above 50 megahertz.

What's the best scanner antenna? That question comes across my desk quite frequently. I couldn't possibly test every scanner available, I'd go broke in doing so. However, I do make one recommendation. If there is one band you listen to more than any other band, consider getting a professional commercial or amateur antenna cut exclusively for the band you like to listen to. For instance, if all the police and fire communications in your area are on VHF high band, consider using an antenna designed to cover 150- 174 MHz or one made for the 2-meter ham band at 144-148 MHz. You will get optimum reception on your favorite band and good to marginal reception on all other bands. While professional commercial antennas are available from two-way radio dealers, ham antennas usually are somewhat cheaper and sometimes in the very same models! If you are looking for DX stations, namely stations that can be heard only when you are hooked up to an outside antenna on your home or vehicle, consider studying the antenna's gain rating. Naturally, an antenna rated at 6 dB gain will offer better reception than an antenna rated at 3 dB gain.

If you want to find more local frequencies, join a local scanner club. There are dozens all across the United States and many publish monthly or bimonthly newsletters. If you can't find a local club, consider starting a club on your own. Place an ad in *POP'COMM* or even in your local newspaper. You'd be amazed at the response, primarily from people who would find it hard to believe that there are others who have the same interests as themselves. There are even some scanner clubs that operate two-way radio systems on UHF repeaters in the general mobile radio service so that members can exchange information instantly—over the air.

The hobby is worth only what you invest in it. If you have all the top-of-the-line scanners in the world, they're worth nothing unless you can help decipher what you tune across. Purchase scanner directories that will help your monitoring. If you are interested in public safety, purchase a directory geared toward that interest. Likewise, if your interests run toward federal government stations, railroads, aircraft, or the like. There are many scanner directories out there to help you figure out those frequencies. Check out the ads here in *POP'COMM*.

Get a handheld scanner if you don't already have one. Mobile and base scanners have their advantages, but don't offer the flexibility of handhelds. For instance, you can carry your handheld with you on vacation, when you go into a storm, while you're sitting on the front porch, when you're in a friend's car, when you're at work, etc. And while you're at it, buy a spare battery, too. You'll find yourself listening all day and night and won't miss a thing.

What listening tips would you like to offer fellow *POP'COMM* readers? We welcome your tips, frequency lists and updates, photos of listening posts and dispatch locations as well as antenna farms, questions and comments. Write to: Chuck Gysi, N2DUP, Scanning VHF/UHF, Popular Communications, 76 North Broadway, Hicksville, NY 11801-2909. ■

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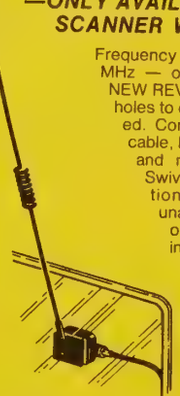

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CIRCLE 161 ON READER SERVICE CARD

Beaming In

(from page 6)

accessed and read about at great length in the many authoritative and handy reference sources presently available.

I suppose the idea is that if a person can prove they are able to operate a transceiver (plug it in, turn it on, press a button), know FCC regs and operating courtesies, and a few antenna system basics, then that should be enough to get them some type of phone-only ham ticket, even if for restricted power and on selected HF and VHF/UHF bands. This would do away with the need to show any familiarity with various things that have traditionally been expected of a ham before being granted HF operating privileges.

I'm not advocating this, just reporting on what's been coming through in the mail here. On the surface, it does seem to offer a certain logic. My own opinion, though, is that a person should be sufficiently curious, anxious, and willing to know (as well as capable of learning) even a little something more about electronics and radio communications than how to plug in a transceiver and press a mike button in order to qualify for a license as an Amateur Radio Operator. Otherwise, what interest in advancing or even perpetuating the art and science of communications is being demonstrated? Isn't that one of the things ham radio is supposed to be about? What point would there be in "qualifying" for a license that proved absolutely no operator qualifications? For that matter, why bother issuing any license at all? Where does one draw the line?

Well, who knows what the FCC might think about this? For starters, international agreements call for a knowledge of CW for ham authorization below 30 MHz. Even so, the FCC fought for years against allowing 5 w.p.m. CW qualified Technician Class hams to use SSB on the 28 MHz band, but then they turned around and approved the idea. For many decades, the agency adamantly refused to consider a no-code ham ticket, and now it's here with full privileges above 30 MHz. The FCC acknowledges how much hams do for the public in the area of providing emergency communications, but the agency recently chopped off 40% of a UHF ham band to hand over on a silver platter to the Philistines. Go figure!

Last August, the ARRL felt the need to remind its members of advice that been had given forty-three years earlier by the organization. The ARRL said that if there were any ham radio regulations about which a member seemed uncertain, the ARRL should be asked for a clarification instead of the FCC. Admittedly, there are a few vague or ambiguous areas in the FCC's rules. Hams have traditionally operated freely for years in such areas without FCC hassle, at least until some poor innocent blunders and asks the FCC for a definitive clarification. Then it becomes a game of Russian Roulette. Should the request for information end up on the desk of the wrong FCC functionary, there's a good chance that it will arouse suspicion that there is something wrong or else such a question would never have been asked. At that point, the agency has been known to play it safe and officially go on record as deciding that, whatever the question relates to, the activity isn't permitted.

The FCC defies being second guessed. It's an agency more obscure than a Calvin Klein TV commercial. It can be more implacable than Captain Ahab. It's more mysterious than James Bond, more puzzling than Rubik's Cube, more difficult to predict than the Super Bowl point spread, more exciting than *Nintendo*, scarier than *Terminator 2*, yet at times it still manages to be funnier than Robin Williams. Marvin Kitman, TV critic at *TV Guide*, once (in *Newsday*) described the FCC as the agency where the right hand doesn't know what the right hand is doing. You can't beat that. It's absolutely unique. An American original. It's our own agency and I, for one, wouldn't trade it for the world!

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Clandestine Communique

(from page 34)

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Fairly new is *Municipos de Cuba*, Monday to Friday at 2305-0000 on WWCR, 15690. Also the *Cuban Patriotic Council* is on WWCR Sundays at 2230-2300 on 15690, followed by *Alianza Cubana* 2300-0000 and *Partido Autentico*, 0000-0100 on 7520. We haven't seen addresses for most of these but reports can probably be sent in care of Radio Miami International, PO Box 526851, Miami, FL 33152.

One clandestine station that seems as if it should be hearable in North America, but so far hasn't been, is the *Voice of the People of Wa State*, a Burmese clandestine which operates from 1130 to 1330 on 5110. Now that we're back in the winter DX season it might be a good time to try again.

The Voice of the Palestine Islamic Revolution is said to be on at 1900-1930 daily on 9610, in Arabic. We've no info as to who might be running this one.

A reminder that your notes on the clandestine scene are much valued. We welcome loggings, QSL and address information, news and clippings, material from stations and groups and so on. Thanks for your continued cooperation. ■

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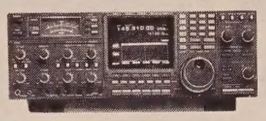

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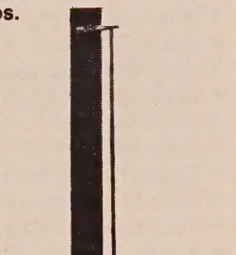

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Options:

External Speaker. Mobile Mount.	MS190	$19.50
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Specifications:

Coverage:	500KHz-1300MHz
Sensitivity:	.35uV NFM, 1.0uV WFM, 1.0AM
Speed:	20 ch/sec. scan. 40 ch/sec. search
IF:	561.225, 58.075, 455KHz or 10.7MHz
Increments:	5 to 955KHz selectable/ 5 or 12.5 steps.
Audio:	.4 Watts
Power:	Input 9 - 13.8 V. DC
Antenna:	BNC
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Dimensions:	6 7/8H x 1 3/4D x 2 1/2W. 12oz wt.

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100 Channels. Low, Air, High, UHF & 800MHz.

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- 100 channels permanent memory.
- Earphone Jack.
- Delay, Hold features.
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- AC & DC Power cord w/mobile mnt. hrdwr. (AR950)
- NiCad battery w/chgr adapter. (AR900)
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Base type antenna 25 to 1000MHz w 50'coax.	AS300	$59.95
Mag Mnt Mobile Antenna. 15' coax.	MA100	$25.00
Cigarette Lighter power adaptor.	CP100	$5.00
Wide band preamp	GW-2	$89.00
Extended Warranty. 2/3 yrs		$40/$55

Specifications:

Coverage:	27-54, 108-174, 406-512, 830-950MHz
Sensitivity:	.4uV Lo,Hi. .8uV Air. .5uV UHF. 1.0uV 800
Scan Speed:	15 ch/sec.
IF:	21.4MHz, 455KHz
Increments:	10,12.5,25,30
Audio:	1W
Power:	12.8VDC, 200MA
Antenna:	BNC
Display:	LCD w/backlight
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- 64 Scan Banks.
- 16 Search Banks.
- RS232 port built in.
- Includes AC/DC pwr crd. Antenna, Mntng Brckt.
- One Year Limited Warranty.

Options:

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External Speaker. Mobile Mount.	MS190	$19.50
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Mobile Mounting Bracket.	MM1	$14.90
RS232 Control Package (software & cable) offers spectrum display and database.	SCS2	$295.00
Wide band preamp	G-W2	$89.00

Specifications:

Coverage:	1MHz-1500MHz
Sensitivity:	.35uV NFM, 1.0uV WFM, 1.0AM/SSB/CW
Speed:	38 ch/sec. scan. 38 ch/sec. search
IF:	750.00, 45.0275, 5.5MHz 455KHz
Increments:	5,12,5,25 KHz
Audio:	1.2 Watts at 4 ohms
Power:	Input 13.8 V. DC 300mA
Antenna:	BNC
Display:	LCD, backlighted
Dimensions:	2 1/4H x 5 5/8W x 6 1/2D Wt. 1lb.

AR3000 $995

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Standard Features:

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- Tuning increments down to 50Hz.
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- Telescopic Antenna
- One Year Limited Warranty.

Options:

Earphone.	EP200	$2.00
External Speaker. Mobile Mount.	MS190	$19.50
Extended Warranty. 2/3 yrs.		$65/$75
Mobile Mounting Bracket.	MM1	$14.90
RS232 Control Package (software & cable) offers spectrum display and database.	SCS3	$295.00
Wide band preamp	G-W2	$89.00

Specifications:

Coverage:	100KHz-2036MHz
Sensitivity:	.35uV NFM, 1.0uV WFM, 1.0AM/SSB/CW
Speed:	20 ch/sec. scan. 20ch/sec. search
IF:	736.23, (352.23) (198.63) 45.0275, 455KHz
Increments:	50Hz and greater
Audio:	1.2 Watts at 4 ohms
Power:	Input 13.8 V. DC 500mA
Antenna:	BNC
Display:	LCD
Dimensions:	3 1/7H x 5 2/5W x 7 7/8D Wt. 2lb 10oz.

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R-2000

The R-2000 is an all band, all mode receiver with 10 memory channels and many deluxe features such as programmable scanning, dual 24-hour clocks with timer, all-mode squelch and noise blankers, a large, front- mounted speaker, 110 volt AC or 12 volt DC operation (with the DCK-1 cable kit), and 118-174 MHz VHF capability with VC-10 option.

Optional Accessories R-2000:

- **VC-10** VHF converter
- **DCK-1** DC cable kit for 12 volt DC use.

R-5000:

- **VC-20** VHF converter
- **VS-1** Voice module
- **DCK-2** for 12 volt DC operation
- **YK-88A-1** AM filter
- **YK-88SN** SSB filter
- **YK-88C** CW filter
- **MB-430** Mounting bracket.

Other Accessories:

- **SP-430** External speaker
- **SP-41** Compact mobile speaker
- **SP-50B** Mobile speaker
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RZ-1
Wide-band scanning receiver

The RZ-1 wide-band, scanning receiver covers 500 kHz-905 MHz, in AM, and narrow or wideband FM. The automatic mode selection function makes listening easier. One hundred memory channels with message and band marker, direct keyboard or VFO frequency entry, and versatile scanning functions, such as memory channel and band scan, with four types of scan stop. The RZ-1 is a 12 volt DC operated, compact unit, with built-in speaker, front-mounted phones jack, squelch for narrow FM, illuminated keys, and a "beeper" to confirm key-board operation.

Optional Accessory

- **PG-2N** Extra DC cable

Specifications, features, and prices are subject to change without notice or obligation.

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